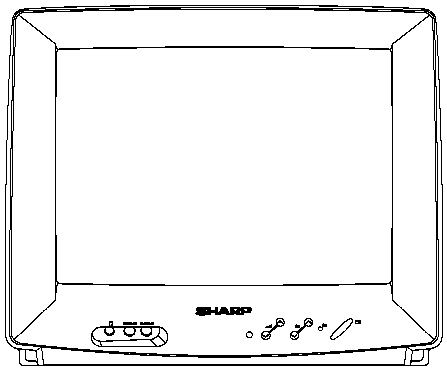
SHARP®

SERVICE MANUAL

S0037GT28FP00
Issued:14th March 2002

SQUAD-T CHASSIS

PAL / SECAM SYSTEM COLOUR TELEVISION



MODEL 37GT-28FP

In the interests of user safety (required by safety regulations in some countries) the set should restored to its original condition and only parts identical to those specified should be used.

CONTENTS

ELECTRICAL SPECIFICATION.....3
IMPORTANT SERVICE NOTES.....4
SERVICE ADJUSTMENTS.....5
PRINTED WIRING BOARDS.....12
COMPONENT LOCATION TABLES.....14
ICs ADDITIONAL INFORMATION.....17
SCHEMATIC DIAGRAM, WAVE FORMS.....24
BLOCK DIAGRAM.....30
TROUBLESHOOTING TABLES.....32
PART LIST.....37
PACKING OF THE SET.....42
REMOTE CONTROL DESCRIPTION.....43

SHARP CORPORATION

This document has been published to be used for after sales service only.

SERVICE MANUAL UPDATE LOG SHEET

Technical Report No. Technical Bulletin No.	Cause / Solution	Part No.	Page No.	Application Data /Serial No.

Use this page to keep any special servicing information as Technical Report (Bulletin), Technical Information, etc.
If only part number changes are required, just change part number directly the part number in the Parts Listing Section.
If you need more information, please refer to the Technical Report (Bulletin).

ELECTRICAL SPECIFICATIONS

•Power Input .....220V-240 Volts AC 50Hz

•Power Consumption

Normal Operating.....30W
(Method IEC60107)

Stand-by Operating.....7.5W

•Audio Power Output Rating .....2W (MPO)

Speaker.....32Ω 2W, 8cm Round, 1pc

Convergence.....Self Converging System

Focus.....Bi-Potencial Electrostatic

Sweep Deflection.....Magnetic

•Picture Intermediate Frecuencies

L'.....33.9MHz
L, B/G.....38.9MHz

•Sound Carrier Trap

L'.....40.4MHz
L.....32.4MHz
B/G.....33.4MHz

•Adjacent Sound Carrier Trap

L'.....32.4MHz
L, B/G.....40.4MHz

•Adjacent Picture Carrier Trap

L'.....41.9MHz
L.....30.9MHz
B/G.....30.9MHz

•Aerial Input Impedance

VHF/UHF.....75 ohm Unbalanced

•Tuning Ranges

L/L'.....55.75MHz thru 855.25 MHz
B/G.....48.25MHz thru 855.25 MHz
CATV Special Channels

•White Level

Set brightness control to get total picture tube cathode current of 600 uA under no signal condition. Maximum necessary correction of each picture tube cathode current to get 8950 degree K-20 MPCD screen temperature should not exceed 15% of its original value.

X=0.290 Y=0.284

Specifications are subject to change without prior notice.

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.
To prevent electric shock, do not remove cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

IMPORTANT SERVICING NOTES

Only qualified service personnel are allowed to carry out mintenance and repair of this receiver.

SERVICING OF HIGH VOLTAGE SYSTEM AND CRT

It is important that the static charge is removed from the high voltage system when carrying out work on the receiver. This can be achieved by connecting a 10K resistor (with a suitably insulated lead) from the CRT cavity connector to the CRT ground tag. This must be carried out with the AC supply disconnected from the receiver.

Note the following:

- The CRT in this receiver employs Integral Implosion Protection.
- If the CRT has to be changed it MUST be replaced with the correct type for continued safe working.
- DO NOT lift the CRT by its neck.
- When handing the CRT, ensure that shatterproof goggles are worn.
- Ensure that the CRT is discharge before handling.

X-RAY

This receiver is designed to keep any x-ray emission to an absolute minimum. Some fault conditions and servicing procedures may produce potentially hazardous x-ray radiation levels. This is a problem when in close proximity to the receiver for long periods of time. To reduce any risks associated with this, please observe the following precautions:

1. When undertaking any servicing on this chassis, DO NOT increase the EHT to more than 30KV, at a instantaneous beam current of 300μA).
2. Ensure that during normal operation the EHT does not exceed 27.5KV(at a beam current of 800μA). This level has been pre-set in the factory. Always check that this level has not been exceeded after carrying out any repair on the receiver.
3. DO NOT replace the CRT with any other type than that specified in the parts listing as this may cause excessive x-ray radiation.

BEFORE RETURNING THE RECEIVER TO THE CUSTOMER

In addition to the above checks, the following should also be carried out before returning the receiver to the customer.

1. Inspect all the leads to ensure that they are dressed correctly and that they are not obstructed or pinched by any other parts.
2. Ensure that all protective devices are in good condition. These will include nonmetallic control knobs, insulating fish papers, cabinets backs, compartment covers or shields, mechanical insulators, etc.

SERVICE ADJUSTMENT

Service Mode Function

All required adjustments for servicing this TV set, may be done in «Service Mode», excepting G2 and FOCUS.

How to access the Service Mode

1. Turn the receiver on and ensure that it is tuned into a test pattern.

2. Turn the receiver off using the mains switch.

3. Press the volume down and channel up buttons together. See Fig. 1.

4. Continue pressing the volume down and channel up buttons while turning the mains on using the mains switch. See Fig. 1.

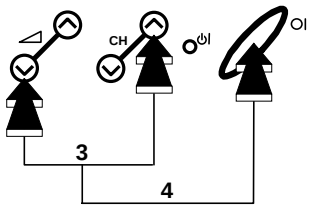


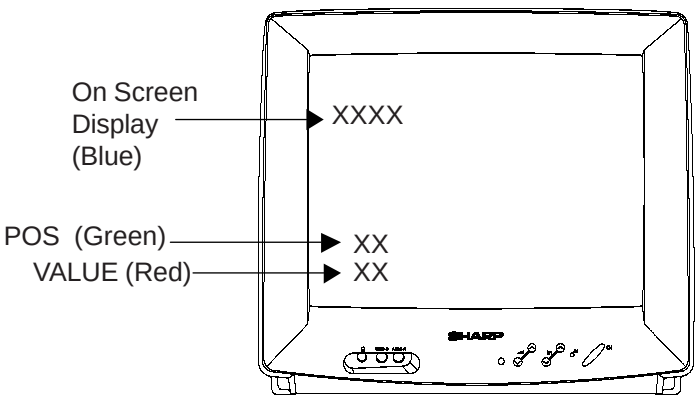
Fig. 1

5. Keep pressing the volume down and channel up buttons until the picture appears.

6. Release the two buttons and the receiver is now in the service mode.

To move between the various service mode functions, use the channel up and down buttons.
Use the volume buttons to change the data to the desired value.
The data will be stored automatically when exiting the service mode.
To exit the service mode, press the stand-by button on the remote control or turn the receiver off with the mains switch.

	Displayed on screen	Hexadecimal / Decim. Range	Function
	-SERV-	00~ 3F	Indicates operative Service Mode
a.	AGC	02~ FE	Auto Gain Control
b.	AFT F	00~ 0F	Auto Frecquency Control Fine } PAL B/G
c.	AFT C	02~ FE	Auto Frecquency Control Coarse } SECAM B/G, L
d.	AFT FL	00~ 0F	Auto Frecquency Control Fine } L'
e.	AFT CL	00~ FF	Auto Frecquency Control Coarse } L'
f.	H-SHFT	00~ 3F	Horizontal Shift
g.	V-SHFT	00~ 0F	Vertical Shift
h.	V-AMPL	00~ 3F	Verical Amplitud
i.	GAIN R	00~ 3F	Red Gain
j.	GAIN G	00~ 3F	Green Gain
k.	GAIN B	00~ 3F	Blue Gain
l.	CUT R	00~ 3F	Red Cut Off
m.	CUT G	00~ 3F	Green Cut Off
n.	NVM	00~ FF	NVM Data Change



Adjustment of Data within the NVM memory

To access the NVM memory, press the channel up button on the remote control until the NVM setting is reached. Note that the NVM address is shown in green and the NVM value is shown in red. Each of the NVM values are stored as a hexadecimal code, each code comprises of two hexadecimal numbers. Each of these numbers will break down into a four bit binary code as in the example below.

Hex code	A	5
Binary code	1010	0101
Button on remote to toggle Bit	7654	3210

In the example given above, the hexadecimal code is A5, the binary equivalent is 1010 0101. The remote control button to toggle each bit on or off (1 or a 0) is shown below the binary code. Therefore to change this to A6, remote control buttons 1 then 0 would have to be pressed.

Note: In the tables below appear b0, b1, b2,.....,b7, whose indicate the bit number:

b0 is the Least Significant Bit (LSB).
b7 is the Most Significant Bit (MSB).

NVM List Description

VALUE	DESCRIPTION	ADDRESS
32	TEMPERATURE RED	00
32	TEMPERATURE GREEN	01
32	TEMPERATURE BLUE	02
26	VERTICAL SHIFT 50HZ	03
32	RED CUTOFF	04
32	GREEN CUTOFF	05
1F	HORIZONTAL SHIFT 50HZ	06
37	VERTICAL AMPLITUDE	07
08	LUMA DELAY b6-b5:AUDIO OUT b4-b5: 00 b3: LUMA DELAY SHIFT b1-b2:00 b0: V OUT INHIBITION	08
2C	CAG ADJUSTEMENT VALUE	09
63	TV OPTIONS b7: ENGLISH OSD b6: AUTOINSTALLATION FIRST OPTION b5: CHILD LOCK ENABLED b4: X b3: UHF BAND ONLY b2: BASIC HOTEL MODE b1: AV FRONT ENABLED b0: FP VERSION	0A
3A	AFT COARSE FOR B/G AND L' SYSTEMS	0B
38	AFT FINE FOR B/G AND L SYSTEMS	0C
92	AFT FINE FOR L' SYSTEMS	0D
FF	VOLUME LIMIT (MAXIMUM)	0E

VALUE	DESCRIPTION	ADDRESS
44	RESERVED b7: x b6: CO_BLK b5: SVHS b4: FRAME_BLK b3: BLACK_ST_REF b2: S_STD2 b1: S_STD1 b0: QSS	0F
38	RESERVED b7: BLACK_ST b6: COR b5: CK_ON b6: COR b5: CK_ON b4: VID_ST2 b3: VID_ST1 b2: CK_1 b1: CK_2 b0: CK_3	10
A5	SIGNATURE VALUE	11
32	TEMPERATURE RED	12
32	TEMPERATURE GREEN	13
32	TEMPERATURE BLUE	14
26	VERTICAL SHIFT	15
32	RED CUTOFF	16
32	GREEN CUTOFF	17
1F	HORIZONTAL SHIFT	18
37	VERTICAL AMPLITUDE	19
08	LUMA DELAY b6-b5:AUDIO OUT b4-b5: 00 b3: LUMA DELAY SHIFT b1-b2:00 b0: V OUT INHIBITION	1 A

VALUE	DESCRIPTION	ADDRESS
2C	CAG ADJUSTEMENT VALUE	1B
63	TV OPTIONS b7: ENGLISH OSD b6: AUTOINSTALLATION FIRST OPTION b5: CHILD LOCK ENABLED b4: X b3: UHF BAND ONLY b2: BASIC HOTEL MODE b1: AV FRONT ENABLED b0: FP VERSION	1C
3A	AFT COARSE FOR B/G AND L' SYSTEMS	1D
38	AFT FINE FOR B/G AND L SYSTEMS	1E
92	AFT FINE FOR L' SYSTEMS	1F
FF	VOLUME LIMIT (MAXIMUM)	20
44	RESERVED b7: X b6: CO_BLK b5: SVHS b4: FRAME_BLK b3: BLACK_ST_REF b2: S_STD2 b1: S_STD1 b0: QSS	21
38	RESERVED b7: BLACK_ST b6: COR b5: CK_ON b6: COR b5: CK_ON b4: VID_ST2 b3: VID_ST1 b2: CK_1 b1: CK_2 b0: CK_3	22
A5	SIGNATURE VALUE	23
32	TEMPERATURE RED	24
32	TEMPERATURE GREEN	25
32	TEMPERATURE BLUE	26
26	VERTICAL SHIFT	27
32	RED CUTOFF	28
32	GREEN CUTOFF	29
1F	HORIZONTAL SHIFT	2 A
37	VERTICAL AMPLITUDE	2B
08	LUMA DELAY b6-b5:AUDIO OUT b4-b5: 00 b3: LUMA DELAY SHIFT b1-b2:00 b0: V OUT INHIBITION	2C
2C	CAG ADJUSTEMENT VALUE	2D
63	TV OPTIONS b7: ENGLISH OSD b6: AUTOINSTALLATION FIRST OPTION b5: CHILD LOCK ENABLED b4: X b3: UHF BAND ONLY b2: BASIC HOTEL MODE b1: AV FRONT ENABLED b0: FP VERSION	2E
3A	AFT COARSE FOR B/G AND L' SYSTEMS	2F

VALUE	DESCRIPTION	ADDRESS
38	AFT FINE FOR B/G AND L SYSTEMS	30
92	AFT FINE FOR L' SYSTEMS	31
FF	VOLUME LIMIT (MAXIMUM)	32
44	RESERVED b7: X b6: CO_BLK b5: SVHS b4: FRAME_BLK b3: BLACK_ST_REF b2: S_STD2 b1: S_STD1 b0: QSS	33
38	RESERVED b7: BLACK_ST b6: COR b5: CK_ON b6: COR b5: CK_ON b4: VID_ST2 b3: VID_ST1 b2: CK_1 b1: CK_2 b0: CK_3	34
A5	SIGNATURE VALUE	35
A5	SIGNATURE VALUE	37
20	NVM SATURATION	38
05	OFFSET FOR VOLUME CURVE	39
1E	VOLUME VALUE (DECIMAL)	3A
31	CONTRAST	3B
19	COLOR SATURATION	3C
20	BRIGHTNESS	3D
07	0,0,P5,P4,P3,P2,P1,P0 LUMA PEAKING VALUE LUPK	3E
01	CURRENT PROGRAM	3F
00	TV STATUS: 00H → TV ON FFH → TV STBY	40
36	FACTORY CONTRAST	41
19	FACTORY COLOR SATURATION	42
20	FACTORY BRIGHTNESS	43
06	FACTORY PEAKING b5-b0: LUMA PEAKING VALUE	44
16	END OF HORIZONTAL CLAMP PULSE	45
19	OSD STATUS b6: X b5: PIN ENABLED b4: CLOCK b3 R8/30 b2: FRONT LOCK b1: AV LOCK b0: E_NORMALIZED PICTURE	46
06	TXT AND OSD OPTIONS b7: X b6: ROW 8/30 (TXT) PREPROCESSING FOR UK b5: PASSWORD ON/OFF b4: OSD REMAINING TIME b3: SIZE OSD PROG: 0= 14” 1= 21” b2: VPS LOCK ON / OFF b1: FLOF b0: TOP	47

VALUE	DESCRIPTION	ADDRESS
00	BEGINING OF HORIZONTAL CLAMP PULSE.	48
1F	VOLTAGE TO CHANGE TO L-L' SYSTEM	49
1F	VOLTAGE TO CHANGE TO L-L' SYSTEM	4A
1A	VERTICAL SYNC DELAY FOR TXT.	4B
69	SLICER CONTROL TTX -> NIBBLE_UP = /NIBBLE_DOWN	4C
F0	CHANNEL SEARCH SPEED [UHF]	4D
F0	CHANNEL SEARCH SPEED [VHL]	4E
F0	CHANNEL SEARCH SPEED [VHH]	4F
AA	HORIZONTAL SYNC DELAY	50
00	PASSWORD 1st DIGIT	51
00	PASSWORD 2nd DIGIT	52
00	PASSWORD 3rd DIGIT	53
00	PASSWORD 4th DIGIT	54
01	CHARACTER SET (LANGUAGE TXT)	55
40	MAXIMUM TUNNING VOLTAGE DECREASE DURING PROG. CHANGE (IN CASE IT IS NOT FOUND THE SYNCHRO)	56

VALUE	DESCRIPTION	ADDRESS
00	b0: HOTEL MODE: DEACTIVATE THE TV PANEL FRONTAL KEY. IT STARTS UP IN SCART MODE WHEN SSW SIGNAL IS GIVEN b1: SPECIAL HOTEL MODE FOR S.E.I.S. THE TIME CONSTANT TO VCR MODE b2: OPTION FOR DK_SYSTEM. b3: AUTOINSTALL ON. b4: COUNTRY SELECTION MENU. b5-b6: RGB DACs LEVEL. b7: VPS_LOCK_SET	57
0F	TIMING PACKET SEARCH, VPS.	58
20	VERTICAL SHIFT FOR 60HZ	59
BB	ONE STEP DOWN WHEN THE FIRST SYNCHRO LOOSING IS PRODUCED	5A
15	UP MAXIMUM STEP No DURING SEARCHING (–).	5B
00	CORRECTION VALUE OF V-SHIFT IN ORDER TO BE INDEPENDENT TO V-AMP BAND OFFSET SPEED DURING SEARCHING	5C
15	AUTOMATIC PEAK RGB REGULATION: PIC REGULATOR	5D
D2	BAND OFFSET SPEED DURING SEARCHING (+) NIBBLE_UP=/ NIBBLE_DOWN	5E
00	FREE	5F
10	TIMING PACKET SEARCH, 8/30.	60
----	RESERVED	61 ~ FF

PIF/AGC Adjustment

1. B/G, L "AFT C" should not be adjusted. The value should be fixed to 0A.

2. B/G, L "AFT F" Adjustment

2.1. Connect the output of SSG (Standard Signal Generator) to the tuner IF output terminal.
- ·SSG output 38.9 MHz (CW) ± 5 KHz.
- ·SSG output level: approx. 90 dB/uV.

2.2. Enter into Service Mode.
2.3. Select parameter AFT F.
2.4. Push «CALL» button on R/C, see Page 43. «AFT OK» will appear in On Screen Display (OSD).
2.5. Switch set OFF and ON again, setting is now memorized.

3. L' "AFT C" should not be adjusted. The value should be fixed to 03.

4. L' "AFT FL" Adjustment

4.1. Connect the output of SSG (Standard Signal Generator) to the turner IF output terminal.
- ·SSG output 34.47MHz (CW) ± 5 KHz.
- ·SSG output level: approx. 90 dB/uV.

4.2. Enter into Service Mode.
4.3. Select parameter AFT FL.
4.4. Push «CALL» button on R/C, see Page 43. «AFT OK» will appear in OSD.
4.5. Switch set OFF and ON again, setting is now memorized.

5. RF-AGC Adjustment

5.1. Receive the " COLOUR Bar" Signal (Channel E-10). Signal strength: 53dB/uV
5.2. Enter into Service Mode.
5.3. Select parameter AGC.
5.4. Push "CALL" button on R/C, see Page 43. "BUS STOP" will appear in OSD.

5.5. Push “GREEN” button on R/C (to exit Bus Stop Mode).
5.6. Switch set OFF and ON again, setting is now memorized.

Screen Adjustment

1. Focus Adjustment
1.1. Apply mains voltage of 220V AC/50HZ to TV.
1.2. Receive Philips pattern signal to a level between 60 and 80 dB/uV.
1.3. Set contrast to 10/10, brightness to 5/10 and colour 0/10.
1.4. Adjust focus potentiometer to obtain maximum definition.

2.G2 Adjustment
2.1. Apply mains voltage of 220V AC/50HZ to TV.
2.2. Receive the “Cross Hatch” pattern signal to a level between 60 and 80 dB/uV.
2.3. Apply High Voltage Probe to Pin 8 of CRT socket
2.4. Adjust G2 potentiometer until obtaining 525V ±10%.
2.5. Check BKGD. If it is necessary adjust BKGD according to instructions detailed below.

Geometry Adjustment Procedure

1. Horizontal Shift
1.1. Receive Philips pattern signal.
1.2 Select H-SHFT with channel up or channel down buttons.
1.3. When volume up button is pressed, picture moves to the left.
1.4. When volume down button is pressed, picture moves to the right.
1.5. Adjust the horizontal location to obtain picture centering (Fig.2).

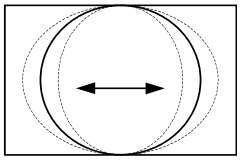


Fig. 2

2. Vertical Shift
2.1. Receive Philips pattern signal.
2.2. Select V-SHFT with channel up or channel down buttons.
2.3. When volume up button is pressed, picture moves up.
2.4. When volume down button is pressed, picture moves down.
2.5. Adjust the vertical location to obtain picture centering (Fig.3).

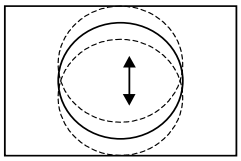


Fig. 3

3. Vertical Amplifier
3.1. Receive Philips pattern signal.
3.2. Select V-AMPL with channel up or channel down buttons.
3.3. When volume up button is pressed, vertical size of picture increases.
3.4. When volume down button is pressed, vertical size of picture decreases.
3.5. Adjust the vertical size to obtain picture overscan (Fig.4).

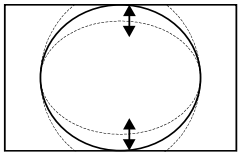


Fig. 4

Colour Adjustment (BKGD) Procedures

The following adjustments are required when the Picture Tube or IC801 are replaced, or may be necessary after adjustment of the G2 voltage.

1. «B-GAIN», «G-GAIN»
1.1. Adjust G2.
1.2. Tune a grey scale pattern.
1.3. Adjust colour to minimum.
1.4. Fix R-GAIN value to 32.
1.5. Position colorimeter in the left point of Fig.5.
1.6. Using brightness and contrast buttons, select a luminance of »120 nits.
1.7. Operate again in Service Mode and select location B-GAIN and G-GAIN to obtain colour coordinates:
X = 0.290 ± 0.015
Y = 0.284 ± 0.015

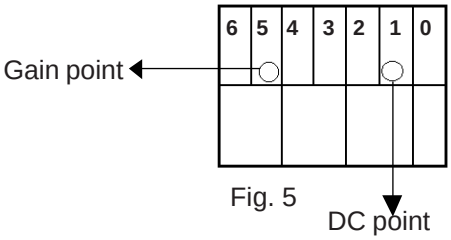


Fig. 5

1.8. Exit Service Mode and check colour coordinates «X» and «Y» at 20 and 120 nits. It may be necessary to repeat the same procedure or readjust the cuts as show the be below one.

2. «CUT R», «CUT G»

2.1. Adjust G2, in the case that it has not been made previously.
2.2. Tune a grey scale pattern.
2.3. Adjust colour to minimum.
2.4. Position colorimeter in the right point of Fig.4.
2.5. Using brightness and contrast buttons, select a luminance of »20 nits.
2.6. Operate again in Service Mode and select location CUT-G and CUT-R to obtain colour coordinates:

X = 0.290 ± 0.015
Y = 0.284 ± 0.015

2.7. Exit Service Mode and check colour coordinates «X» and «Y» at 20 and 120 nits. It may be necessary to repeat the same procedure or the previous one.

Cancel password (PIN)

The following process describes how to cancel actual password (PIN) when the customer forgets the code.

1. Press channel up or down to select the channel, wich you locked with input PIN number.
2. The TV picture will be blue and the key appear on screen.
3. Press and hold volume down on the TV and simultaneously press CHILD LOCK button (see Page.43) on the remote control several times until the key disappears.

Procedure to Program Functions of Hotel Mode

Below listed can be found the procedure to carry out in the above TV Sets functions called HOTEL MODE as follows: Consider that HOTEL MODE is implemented by means of HOTEL MODE 1. The HOTEL MODE 2 or HOTEL MODE 3 can be used at the same time than HOTEL MODE 1.

HOTEL 1	**Blockade of tuning functions**	**Restriction of sound**
HOTEL 2	**Blockade of tuning functions**	**Start on SCART mode + SW when SCART IS ACTIVE (Front Panel inactive)**
HOTEL 3	**Blockade of tuning functions**	**VCR constant changed**

Hotel 1 Mode: blockade of the TUNING function by modifying the value in 0A address of the NVM.
-This change besides blocking the tuning function, makes the TV always starts to operate in program 1.

Procedure:

A) Press the volume up or volume down buttons (RC) as far as the NVM address (green colour) displays “0A” location. Check the NVM value (red colour) displays the NORMAL VALUE .

B) **Pay Attention:** Press the button 2 (RC) only once. The NORMAL VALUE has been changed to the HOTEL 1 MODE VALUE now. If the button 2 (RC) is pressed again the NORMAL VALUE is recovered. For the same reason, if a wrong button has been pressed, NORMAL VALUE can be recovered by pressing the same button again. See NVM table on page 6.

Restriction of Sound Volume: by modifying the value in 0E address of the NVM.
Notes:
a) Before blocking the tuning function is necessary to memorise the programs according to the necessities of the destination hotel.
b) Since the Hotel Mode functions have been programmed the end users of the television won’t be able to tune different channels neither to erase the existent ones.

c) Neither one will be able to get the sound volume in a superior level to the maximum limited in each case.

Procedure:

A) Press the volume up or volume down buttons as far as the NVM address displays 0E location.

B) By pressing some specific numerical buttons (RC) can be modified the value previously stored in SEES factory in the 0E location, so that the maximum level of sound can be limited from FF (= 100%, the highest volume level stored in Factory) to 00 (= 0%, no sound). Please find below listed some values which can be stored to reduce the sound volume level:

BUTTON (RC) TO BE PRESSED	VALUE STORED	SOUND VOL. LIMITED TO
(4)(3)	(EF)(E7)	90%
(5)(4)	(DF)(CF)	80%
(6)	(BF)	73%
(6)(5)	(BF)(9F)	62%

Example: After having selected “OE” location, press button 6 of RC (value changed to BF).
- Next press button 5 (value changed to 9F). The value stored will be 9F. The sound volume will be limited to 62% approx.
- If it were necessary to reduce till other different sound levels please change the original FF value to the proper value.
- If it were necessary to recover the original value FF (100% volume) please proceed the contrary.
For instance: If you have limited the sound level to 62% the “0E” location will display “9F” value. Press button 5 (RC) to recover BF value, then press button 6 (RC) and FF value will be recovered.

Hotel 2 Mode: by modifying the value in 57 address of the NVM .
-When the TV set is switched on by main it starts working in SCART mode.
-When the TV is in STAND-BY mode and it is connected to a VCR through a 21 pins wire, it may be switched on simply by SLOW SWITCH (VCR in PLAY mode).
-In these circumstances the Front Panel Control Keys does not work.

Procedure:

A) Press the volume up or volume down buttons (RC) as far as the NVM address (green Colour) displays “57” location. Check the NVM value (red colour) displays the NORMAL VALUE . See NVM Table on page 8.

B) **Pay Attention:** Press the button 0 (RC) only once. The NORMAL VALUE has been changed to the HOTEL 2 MODE VALUE now. If the button 0 (RC) is pressed again the NORMAL VALUE is recovered. For the same reason, if a wrong button has been pressed, NORMAL VALUE can be recovered by pressing the same button again.

Hotel 3 Mode: by modifying the value 57 address of the NVM.
-When this it is activated VCR mode is set in all programs.

Procedure:

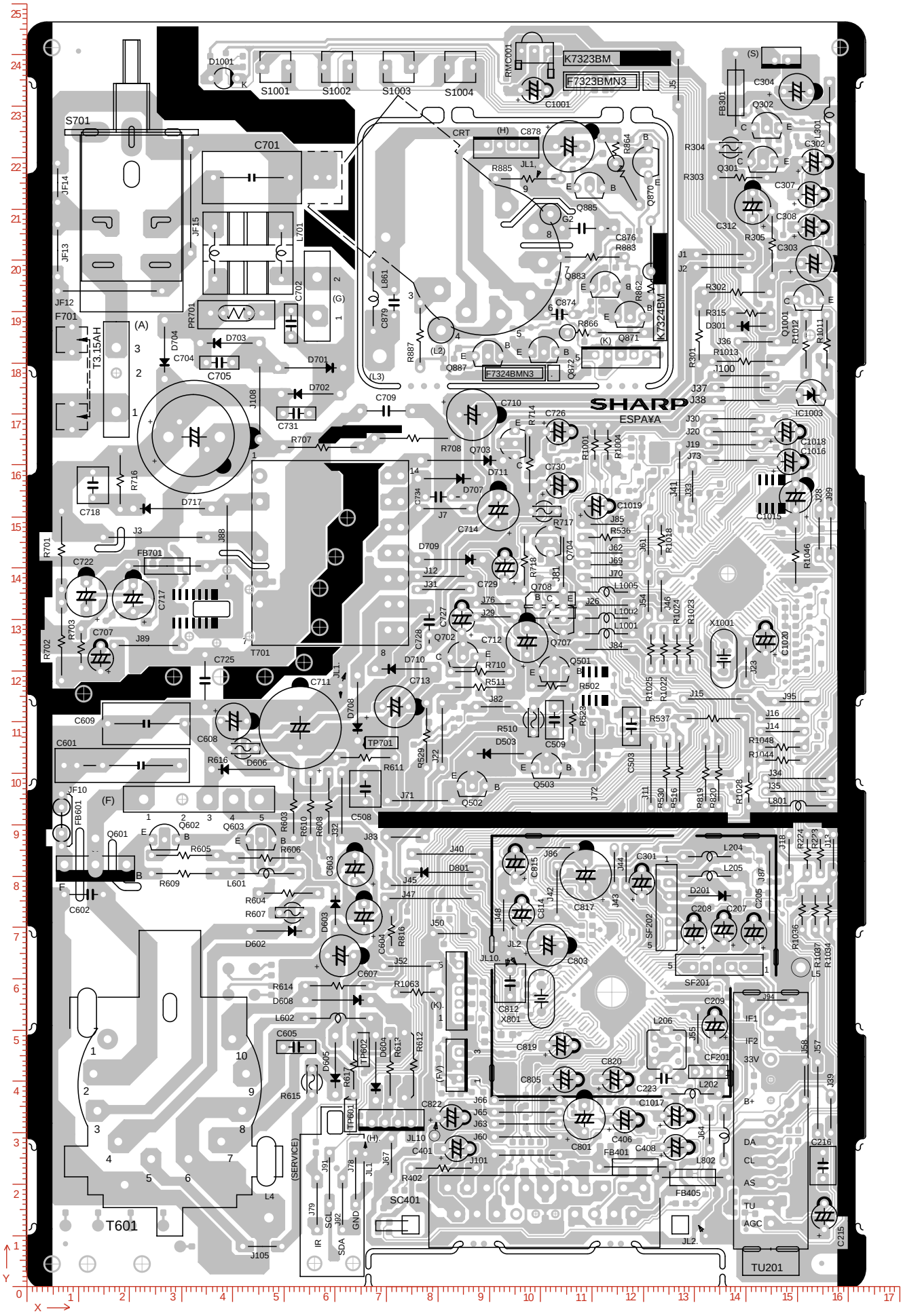
A) Press the volume up or volume down buttons (RC) as far as the NVM address (green colour) displays “57” location. Check the NVM value (red colour) displays the NORMAL VALUE.

B) **Pay Attention:** Press the button 1 (RC) only once. The NORMAL VALUE has been changed to the HOTEL 3 MODE VALUE now. If the button 1 (RC) is pressed again the NORMAL VALUE is recovered. For the same reason, if a wrong button has been pressed, NORMAL VALUE can be recovered by pressing the same button again. See NVM Table on page 8.

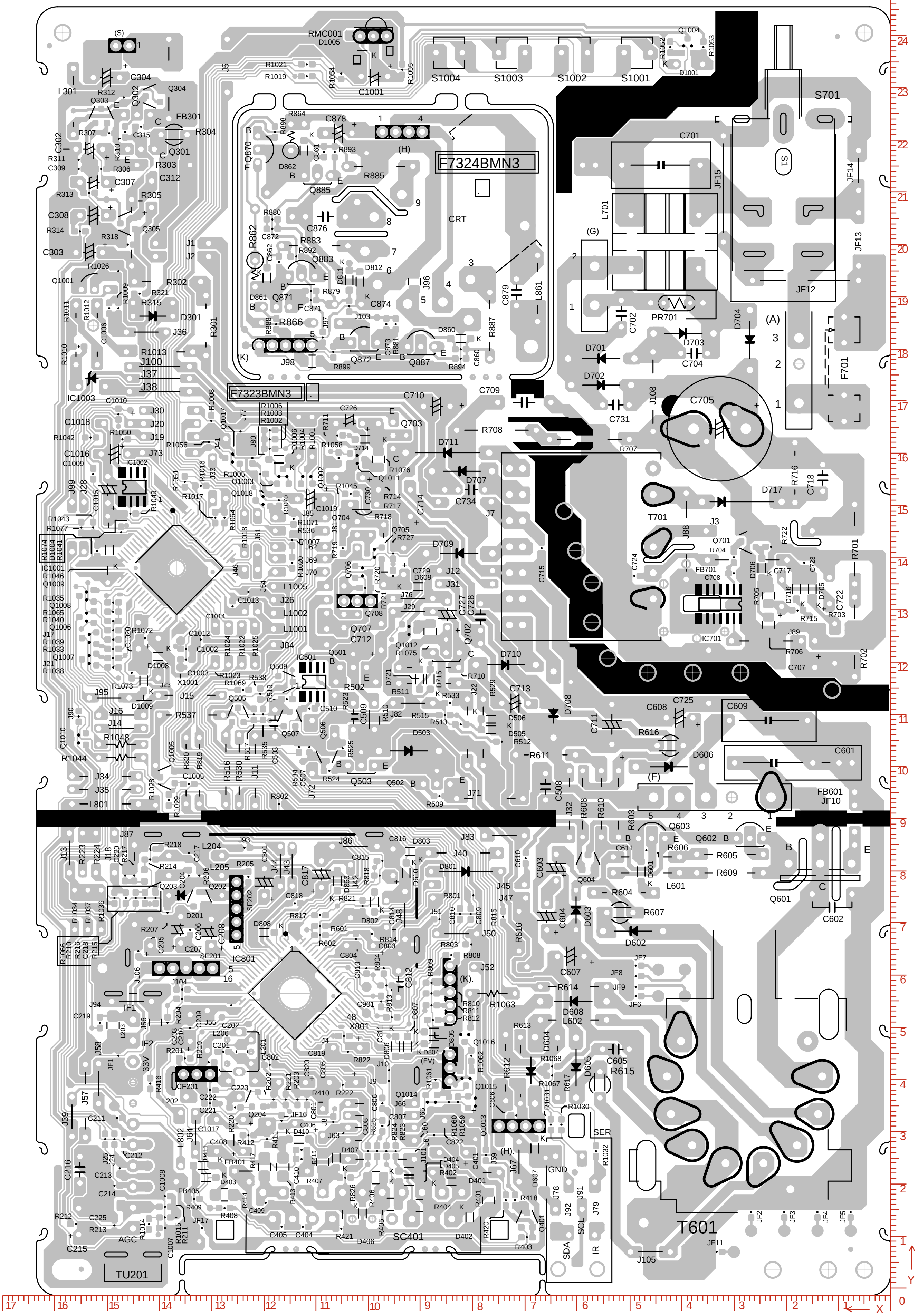
Finally press the Mains Power Button to switch OFF the TV SET . The changes made are stored automatically when the TV SET is switched OFF.

Check the Hotel Functions work OK.

F7323N3 MOTHER BOARD UNIT PWB. Component side.

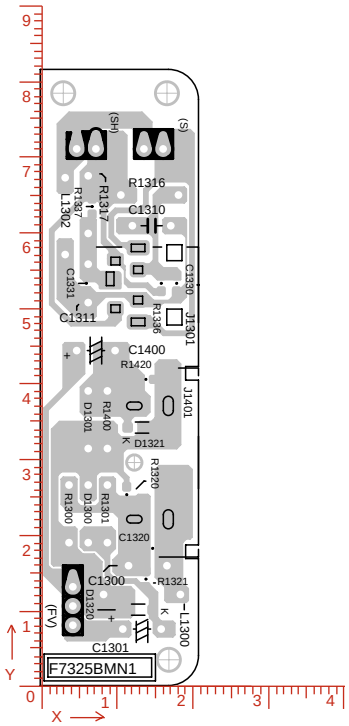


F7323N3 MOTHER BOARD UNIT PWB. Copper side.

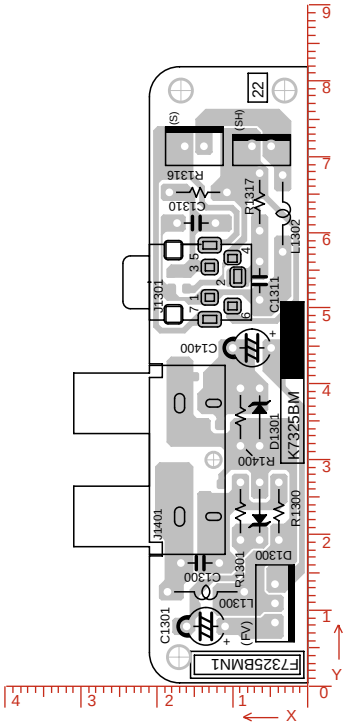


F7325N1 FRONT A / V UNIT PWB.

Copper side.



Component side.



F7325N1 FRONT A / V PWB COMPONENT LOCATION TABLES

Copper side.

Ref_No	Xum	Yum
C1320	18135	14859
C1330	53187	18034
C1331	53187	6096
D1320	10007	12954
D1321	34137	13462
R1320	25247	11430
R1321	14071	13970
R1336	53187	16002
R1337	63347	6858
R1420	40487	13970

Component side.

Ref_No	Xum	Yum
(FV)	10515	4318
(S)	70967	14986
(SH)	70967	6096
C1300	15849	14224
C1301	7467	13462
C1310	60807	14732
C1311	53187	6350
C1400	44297	7366
D1300	22707	6350
D1301	35153	6350
J1301	52984	20929
J1401	29489	20929
L1300	12039	13462
L1302	62077	3302
R1300	22707	3810
R1301	22707	8890
R1316	64871	14478
R1317	63601	6350
R1400	35153	8890

MOTHER UNIT F7323N3 PWB COMPONENT LOCATION TABLES.

Component Side.

Ref_No	Xum	Yum
(A)	17526	178562
(F)	22860	95504
(FV)	84328	43688
(G)	56642	193548
(H)	93472	223012
(H).	71120	32512
(K)	115824	182118
(K).	84328	58166
(L2)	80772	186944
(L3)	68834	181864
(S)	147066	239522
C1	32512	166370
C1001	98806	233680
C1015	149860	154432
C1016	148590	161290
C1017	126492	33782
C1018	148082	167132
C1019	110998	152654
C1020	144018	126492
C205	141732	69596
C207	135890	70104
C208	130048	69596
C209	134112	51308
C215	155448	14224
C216	155194	24130
C223	124206	41148
C301	119888	79248
C302	153416	219710
C303	153416	199898
C304	150114	233426
C307	152654	213360
C308	152654	207010
C312	141478	211074
C401	83820	27432
C406	116586	33020
C408	126492	27686
C503	117856	109728
C508	66040	97536
C509	102870	110998
C601	22352	102108
C602	11176	76962
C603	64008	82042
C604	65786	72644
C605	52578	47244
C607	61214	65024
C608	40386	110744
C609	23368	110236
C701	43942	216662
C702	51562	188214
C704	37592	180594
C705	32765	166116
C707	14478	122936
C709	70104	171196
C710	86868	170434
C711	53340	109474
C712	97536	126238
C713	71882	113538
C714	91948	151892
C717	20828	134620
C718	12954	156718
C722	11684	135128
C725	34798	118618
C726	103632	167132
C727	84836	130555
C728	78486	130048
C729	93218	140716
C730	103632	156718
C731	52578	170688
C734	80264	154432
C801	108712	33274
C803	101600	67056
C805	104902	40894
C812	94234	59690
C814	96520	73152
C815	95250	83058
C817	108966	80772
C819	104140	47498
C820	114554	40894
C822	82804	33528
C874	103886	189992
C876	108204	206756
C878	105664	222758
C879	71628	192278
CF201	132842	42418
CRT	89408	200660
D1001	38506	235991
D201	133096	76708
D301	141224	187706
D503	92202	104394
D602	49276	69850
D603	60198	73914
D604	68072	43180
D605	60198	43688
D606	42418	101346
D608	60706	56388
D701	55372	179578
D702	55372	174498
D703	39624	184404
D704	26924	183134
D707	82042	157988
D708	64516	113284
D709	82550	142240
D710	73660	120904
D711	84836	161544
D717	28448	152146
D801	81280	81280
F701	8890	177546
FB301	138176	233172
FB401	118618	23876
FB405	129794	21844
FB601	6858	91440
FB701	27432	140970
G2	102108	209550
IC1003	152908	174244
IC801	114046	57912
J1	135636	201676
J100	139954	178054
J101	97536	26162
J105	45974	8382
J108	45466	173228
J11	121666	100584
J12	81280	138938
J13	157226	84836
J14	147320	108712
J15	134112	115062
J16	147320	111252
J18	148590	84836
J19	137922	164592
J2	135636	199136
J20	137922	167132
J22	81026	107950
J23	140208	122174
J26	113030	133350
J28	154432	147320
J29	91440	131063
J3	25146	146558
J30	137922	169672
J31	81280	136398
J32	61468	94234
J33	129794	156464
J34	150368	99568
J35	150368	97028
J36	142494	184658
J37	139954	175768
J38	139954	173228
J39	156718	34290
J40	81788	84836
J41	127254	158496
J42	103378	77470
J43	114554	82296
J44	116840	82296
J45	78994	78740
J46	123698	135128
J47	78740	76200
J48	92964	72898
J5	127000	235712
J50	83058	69342
J52	74676	62992
J54	121158	135128
J55	130809	50800
J57	154178	37338
J58	151638	40640
J60	97536	29718
J61	121158	146050
J62	113030	143510
J63	97536	32258
J64	133096	31242
J65	97536	34544
J66	97536	36830
J67	71120	25654
J69	113030	141224
J7	81534	152146
J70	113030	138684
J71	76708	95250
J72	110744	105156
J73	138176	161544
J76	91440	133604
J78	64135	21640
J79	56642	16687
J81	104648	141732
J82	91440	113538
J83	73914	88138
J84	113030	124714
J85	113030	149098
J86	102616	86106
J87	144780	78740
J88	39116	145542
J89	23774	125476
J91	59055	21640
J92	61595	16687
J94	145288	56388
J95	149606	114554
J99	156718	147320
JF10	6858	91440
JF12	16256	194564
JF13	6096	202438
JF14	6096	215646
JF15	32004	212090
JL1	66040	26416
JL1,	100330	218948
JL1.	61214	117602
JL10	79502	29972
JL10.	93980	65531
JL2	93980	65531
JL2.	132334	10414
KK1	75438	165862
KK4	6858	126238
KK5	6858	144018
L1001	113030	127762
L1002	113030	130809
L1005	113030	135890
L202	129794	38100
L204	133096	84328
L205	133096	80518
L206	124714	46736
L301	156464	228854
L4	47244	13970
L5	150876	62738
L601	46736	81026
L602	60706	52832
L701	43180	201930
L801	150368	94234
L802	135890	29972
L861	67564	193040
PR701	40894	190246
Q1001	152400	192786
Q301	143510	219710
Q302	144272	226314
Q501	102870	120396
Q502	86868	98044
Q503	101346	101600
Q601	13462	82804
Q602	26924	87630
Q603	45720	87630
Q702	85090	123190
Q703	95250	164846
Q704	102108	145796
Q707	104648	130555
Q708	102108	133096
Q870	121158	219710
Q871	117602	189484
Q872	100838	182626
Q883	112776	195326
Q885	109728	214630
Q887	89916	181864
R1001	110744	164592
R1004	113284	164592
R1011	155956	184150
R1012	151892	184150
R1013	139954	180848
R1018	123698	146050
R1022	124206	124714
R1023	129286	124714
R1024	126746	124714
R1025	121666	124714
R1028	140716	97790
R1034	156210	73914
R1036	151130	73914
R1037	153670	73914
R1044	147320	103124
R1046	149860	143002
R1048	147320	105664
R1063	76200	57912
R223	154686	84836
R224	152146	84836
R301	131063	185928
R302	138430	194310
R303	139192	216662
R304	137160	222504
R305	145288	203708
R315	141224	190246
R402	81280	23622
R502	102362	117602
R510	98806	110998
R511	88392	117348
R516	127254	100838
R523	106426	111252
R529	77978	107950
R530	124714	100838
R536	113030	146558
R537	133858	111252
R603	52070	94234
R604	51054	77216
R605	30734	84582
R606	46736	84074
R607	51816	73406
R608	58928	94234
R609	30734	81026
R610	55372	94234
R611	66040	103632
R612	73660	43688
R613	70866	43180
R614	60706	59182
R615	55626	40386
R616	42164	105410
R617	63754	43688
R701	6858	144018
R702	6858	126238
R703	10668	124968
R707	57658	164084
R708	75438	165862
R710	88392	120396
R714	98044	160782
R716	18288	157734
R717	100838	151638
R718	97028	141986
R816	71120	69850
R819	132334	100584
R820	134874	100584
R862	121666	195834
R864	114808	221996
R866	107950	186436
R883	110236	201168
R885	97790	216408
R887	76708	185928
RMC001	98501	244983
S1	20497	243484
S1001	48488	238201
S1002	60502	238201
S1003	72491	238201
S1004	84505	238201
S701	20497	243484
SC401	101117	17246
SF201	134874	62738
SF202	125222	74168
T601	27940	10414
T701	59182	143510
TU201	145034	7874
X1001	135890	122936
X801	100330	56642

MOTHER UNIT F7323N3 PWB COMPONENT LOCATION TABLES.

Copper Side.

Ref_No	Xum	Yum
C1002	134874	123952
C1003	134874	121920
C1005	134366	98044
C1006	149606	189230
C1007	138938	12954
C1008	138938	19050
C1009	152654	157480
C1010	147828	168910
C1012	132080	125730
C1013	122936	134874
C1014	125984	132080
C201	127762	46736
C202	126238	55626
C203	138430	52324
C204	134366	80518
C206	134112	70104
C210	134112	51308
C211	148082	34036
C212	146812	29972
C213	147574	24384
C214	148590	21082
C217	134366	84836
C218	142748	76200
C219	151384	52324
C220	146558	80518
C221	130301	36830
C222	130301	39370
C225	148844	17272
C309	155448	215900
C315	143510	224028
C404	112522	13208
C405	116586	13208
C409	119634	17780
C410	112776	26162
C507	111252	105156
C510	111252	112522
C606	71628	34544
C610	69850	83820
C611	46736	85344
C708	29972	138430
C715	66802	143256
C723	16510	140462
C724	49022	137922
C802	118872	44196
C804	102362	68326
C806	97282	36830
C807	97282	32512
C808	100076	27686
C809	80391	73152
C810	82423	73152
C811	95504	53340
C813	100330	62738
C816	97282	83312
C818	114046	75184
C860	82296	181356
C861	108458	219202
C862	117094	198120

Ref_No	Xum	Yum
C871	110998	190754
C872	118364	204470
C873	96520	186182
C901	97536	56388
D1004	149606	142875
D1005	101092	239268
D1006	117094	160274
D1008	140208	122428
D1009	143002	117856
D401	84074	21844
D402	80518	14986
D403	131063	22606
D404	92202	23876
D405	92202	21844
D406	101092	15748
D407	106172	26416
D410	113284	29972
D411	131572	24892
D505	76454	108458
D506	76454	110490
D601	47752	81280
D607	68072	28194
D609	90424	135890
D610	92710	81026
D705	14986	135382
D706	24638	139446
D714	100584	164084
D715	88138	118110
D716	18034	135382
D721	90170	118110
D802	98806	75438
D803	91948	85090
D804	87376	48260
D805	87376	50546
D806	94742	47752
D807	92456	47752
D808	119888	69596
D811	103632	194564
D812	101600	194310
D860	82296	183388
D861	119380	195072
D862	112268	219456
D863	105918	79502
IC1001	136652	139446
IC1002	144780	154940
IC501	110363	117602
IC701	32512	132588
J10	96012	43180
J103	103632	189611
J104	135636	58674
J106	144018	66040
J17	148844	127508
J21	148844	122174
J24	148590	29972
J25	150368	29972
J4	104648	49784
J51	86360	72136

Ref_No	Xum	Yum
J56	140716	52324
J59	77470	26924
J6	87376	30734
J77	124460	165608
J8	106680	33274
J80	122174	160528
J9	96012	41148
J90	155448	110998
J93	123698	85852
J96	91186	194310
J97	108712	183642
J98	110744	179070
JF1	147828	45974
JF11	33274	8382
JF16	116586	33528
JF17	131826	12954
JF2	26670	16002
JF3	20320	16002
JF4	13970	16002
JF5	7620	16002
JF6	48768	57404
JF7	48768	63246
JF8	48768	61214
JF9	48768	59182
L201	124206	46736
L203	148844	51816
Q1002	111760	156972
Q1003	116332	156972
Q1004	38862	239522
Q1005	138430	99314
Q1006	153416	125984
Q1007	153416	121920
Q1008	153924	130048
Q1009	153924	134112
Q1010	155448	106680
Q1011	102108	160274
Q1012	92202	127508
Q1013	79502	37084
Q1014	87884	37084
Q1015	81280	41656
Q1016	81534	50038
Q1017	125984	160528
Q1018	120142	152400
Q202	132334	75946
Q203	141478	80518
Q204	121158	37592
Q303	151130	226060
Q304	141224	229870
Q305	146050	205486
Q401	69596	14478
Q505	124968	111252
Q506	107950	103886
Q507	115062	110490
Q509	115824	117602
Q604	57912	83058
Q701	27178	144526
Q705	98806	142240

Ref_No	Xum	Yum
Q706	101092	138684
R1002	118872	162306
R1003	118872	164084
R1005	120650	157480
R1006	118872	165862
R1007	114554	144780
R1008	130048	167640
R1009	147828	189230
R1010	155448	181864
R1014	141986	13716
R1015	138938	14986
R1016	132080	155194
R1017	129286	149098
R1019	111760	233680
R1020	114554	140462
R1021	111760	235966
R1026	147828	196342
R1029	138176	94996
R1030	62992	32765
R1031	65024	32765
R1032	56388	27686
R1033	148844	123952
R1035	148844	132842
R1038	148844	120396
R1039	148844	125730
R1040	148844	129286
R1041	147320	146304
R1042	153162	164465
R1043	152654	147193
R1045	103378	153670
R1049	145542	149860
R1050	147066	164084
R1051	135128	155956
R1052	42164	239268
R1053	35814	239268
R1054	105156	234188
R1055	93472	234950
R1056	130555	163576
R1058	105664	160528
R1059	82804	37084
R1060	84582	37084
R1061	87122	41402
R1062	80264	45974
R1064	127508	149098
R1065	148844	131063
R1066	148590	76200
R1067	64770	42164
R1068	64770	43942
R1069	123952	116078
R1070	117094	152400
R1071	114300	148844
R1072	142748	125984
R1073	145288	119380
R1074	151892	142748
R1075	88138	127254
R1076	98044	160274
R1077	154940	147193

Ref_No	Xum	Yum
R201	135128	45466
R202	118110	37592
R203	113538	37592
R204	135636	56896
R205	122936	80264
R206	132334	80518
R207	138430	73406
R210	146431	76200
R211	138938	17018
R212	155956	13716
R213	148590	13462
R214	141732	83566
R215	140716	76200
R216	144526	76200
R217	144780	80518
R218	141732	85598
R219	130555	44704
R220	125476	36068
R221	115824	37592
R222	104902	40386
R306	151130	215900
R307	149606	222758
R310	146558	223012
R311	155448	217678
R312	146812	229616
R313	153416	211328
R314	155194	203962
R318	146050	201422
R321	143764	192024
R401	76962	18288
R403	69596	11176
R404	90170	17272
R405	95758	17526
R406	98552	22606
R407	108712	25654
R408	127508	16764
R409	133350	18542
R410	111760	37592
R411	119380	29972
R412	122936	30734
R413	116332	24638
R414	127508	19304
R415	112776	27940
R416	141732	40640
R417	119888	24638
R418	71882	18288
R420	73660	18288
R421	105156	12827
R509	86360	95758
R512	74422	106172
R513	82296	109474
R515	85344	111252
R517	121920	111379
R519	115570	114300
R524	107442	100584
R525	104902	104902
R533	84328	113538

Ref_No	Xum	Yum
R534	113284	105156
R535	120142	111379
R538	120650	115316
R601	109220	70866
R602	109220	69088
R704	29972	141478
R705	23368	134112
R706	23368	128524
R711	105918	164846
R715	17780	131318
R719	104902	143256
R720	95250	137922
R721	100584	135636
R722	22860	143510
R727	95250	142240
R801	79883	76708
R802	117094	94234
R803	80264	67310
R804	97028	62738
R808	84074	65277
R809	87884	59944
R810	87884	57912
R811	87884	55626
R812	87630	52832
R813	96520	59436
R814	99314	69342
R815	74168	72644
R817	109220	72898
R818	97790	80518
R821	101092	74676
R822	103886	46736
R823	94742	27686
R824	96520	27686
R825	98298	27686
R826	104394	22606
R879	110998	192532
R880	118364	206248
R881	94742	186182
R888	117602	186182
R892	113792	199136
R893	106426	219202
R894	82296	179578
R898	117856	223012
R899	106680	180848

ICs ADITIONAL INFORMATION

SDA 5552 (IC 1001)

Micronas Intermetall Data Sheet: “SDA55XX TVText Pro”
http://www.micronas.com/products/documentation/consumer/sda555x/downloads/sda55xx_1ds.pdf

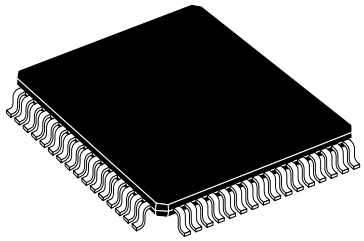
STV2238 (IC 801)

FEATURES

- I^{2}C BUS CONTROL.
- PIF CIRCUIT WITH PLL DEMODULATION (Positive and Negative Video).
- SIF CIRCUIT WITH QSS STRUCTURE, FM DEMODULATION AND AM DEMODULATION FOR FRANCE.
- INTERCARRIER CAPABILITY.
- BUILT IN SOUND BANDPASS.
- SOUND SUB CARRIERS OUTPUT FOR STEREO CHASSIS (FM, Nicam).
- AUDIO SWITCH AND VOLUME CONTROL (Mono Chassis).
- INTEGRATED CHROMA FILTERS AND LUMA DELAY LINE.
- INTEGRATED CHROMA DELAY LINE.
- VIDEO SWITCH (3 CVBS IN, 1 or 2 CVBS OUT).
- SVHS SWITCH (Y combined with CVBS3 input).
- OSD RGB INPUTS.
- EXTERNAL RGB/YUV INPUTS or YUV INTERFACE.
- PAL / SECAM / NTSC CHROMA DEMODULATORS.
- AUTO FLESH CONTROL CAPABILITY IN NTSC.
- SOUTH AMERICA CAPABILITY (PALM/PALN/ NTSC).
- CHROMA SUBCARRIER OUTPUT.
- BLACK STRETCH CIRCUIT.
- PEAKING CIRCUIT.
- AUTOMATIC CUT-OFF CURRENT LOOP.
- MANUAL CUT-OFF POSSIBLE FOR LOW COST APPLICATIONS.
- TWO PLLs HORIZONTAL DEFLECTION.
- VERTICAL COUNT DOWN.
- HALF CONTRAST (optional).
- APR (Automatic RGB peak regulation) FUNCTION (optional).
- SAW FILTER SWITCH CONTROL (optional).
- VERY FEW EXTERNAL COMPONENTS.

DESCRIPTION

The STV223XD/223X/224X are fully bus controlled ICs for TV including PIF, SIF, luma, chroma and deflection processing. Used with a vertical frame booster (TDA1771 or TDA8174 for 90° chassis, STV9306 for 110° chassis), they allow the design of multistandard (BGDKIMNLL, PAL/ SECAM/NTSC) sets with very few external components and no manual adjustments.



TQFP64 (14 x 14 x 1.4 mm)
(Full Thin Plastic Quad Flat Pack)

ORDER CODE: STV223XD

STV2238 (IC 801)

STV 22XX FAMILY CHARACTERISTICS

Package	Application		
	PAL/SECAM/NTSC QSS/INTERCARRIER AM	PAL/NTSC QSS/INTERCARRIER	PAL/NTSC INTERCARRIER
SHRINK56	STV2238/48	STV2237/47	STV2236/46/86
TQFP64	STV2238D	STV2237D	STV2236D

STV 22XX IC VERSIONS

	IC Version									
	SHRINK56							TQFP64		
Function	**2236**	**2237**	**2238**	**2246**	**2247**	**2248**	**2286**	**2236D**	**2237D**	**2238D**
PAL/SECAM/NTSC			X			X				X
PAL/NTSC	X	X		X	X		X	X	X	
QSS/INTERCARRIER		X	X		X	X			X	X
INTERCARRIER ONLY	X			X			X	X		
AM			X			X				X
1 CVBS OUTPUT	X	X	X	X	X	X	X			
2 CVBS OUTPUTS								X	X	X
1 EXT RGB INPUT	X	X	X				X			
OSD RGB INPUTS & RGBEXT/YUVEXT INPUTS				X	X	X		X	X	X
YUV INTERFACE		X	X						X	X
APR				X	X	X	X	X	X	X
HALF CONTRAST								X	X	X
SAW FILTER CONTROL								X	X	X

STV2238 (IC 801)

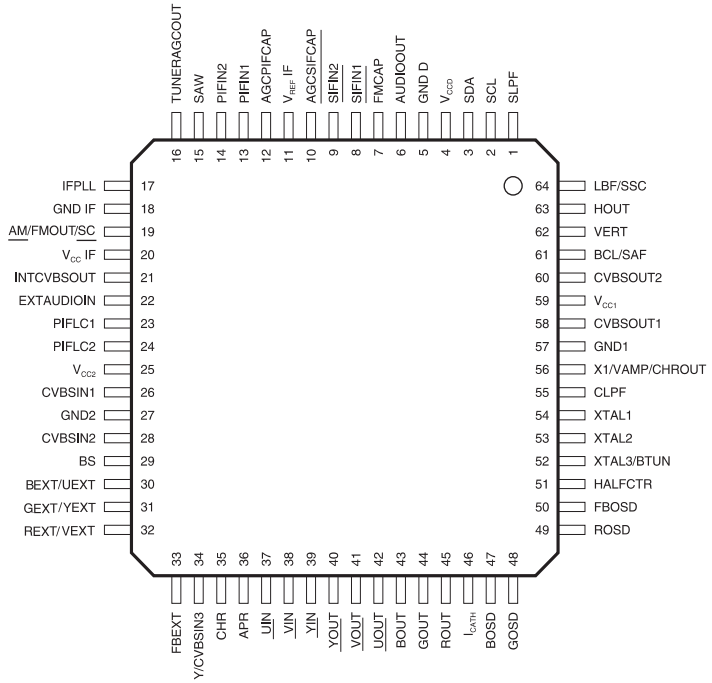
Pin N°			Symbol	Description
STV224X/8X	STV223X	STV223XD		
SDIP56	SDIP56	TQFP64		
1	1	8	SIFIN1	SIF Input
2	2	9	SIFIN2	SIF Input
3	3	10	AGCSIFCAP	AGC SIF Capacitor
4	4	11	V_{REF} IF	Voltage Reference Filtering
5	5	12	AGCPIFCAP	AGC PIF Capacitor
6	6	13	PIFIN1	PIF Input
7	7	14	PIFIN2	PIF Input
8	8	16	TUNERAGCOUT	AGC Tuner Output
9	9	17	IFPLL	IF PLL Filter
10	10	18	GND IF	IF Ground
11	11	19	AM/FMOUT/SC	AM/FM Mono Sound or Stereo Carriers Output
12	12	20	V_{CC} IF	5 V IF Supply
13	13	21	INTCVBSOUT	Internal CVBS Output
14	14	22	EXTAUDIOIN	External Audio Input
15	15	23	PIFLC1	LC Input
16	16	24	PIFLC2	LC Input
17	17	25	$V_{CC}2$	Video/Luma Supply Voltage (8 V)
18	18	26	CVBSIN1	Internal Video Input
19	19	27	GND2	Video/Luma Ground
20	20	28	CVBSIN2	External Video Input
21	21	29	BS	Black Stretch Capacitor
22	22	34	Y/CVBSIN3	Y(SVHS) or CVBS3 External Input
23	23	35	CHR	Chroma (SVHS) Input
-	24	37	UIN	B-Y Input (Note 1)
-	25	38	VIN	R-Y Input (Note 1)
-	26	39	YIN	Y Input (Note 1)
-	27	40	YOUT	Y Output (Note 1)
-	28	41	VOUT	R-Y Output (Note 1)
-	29	42	UOUT	B-Y Output (Note 1)
30	30	43	BOUT	Blue Output
31	31	44	GOUT	Green Output
32	32	45	ROUT	Red Output
33	33	46	I_{CATH}	Cathode Current Measurement Input
34	34	47	BOSD	OSD Blue Input
35	35	48	GOSD	OSD Green Input
36	36	49	ROSD	OSD Red Input
37	37	50	FBOSD	OSD Fast Blanking
38	38	52	XTAL3/BTUN	3.5X MHz Crystal or Cloche Filter Tuning Capacitor
39	39	53	XTAL2	3.5X MHz Crystal
40	40	54	XTAL1	4.43/3.5X MHz Crystal
41	41	55	CLPF	Chroma PLL Filter
42	42	56	X1/VAMP/CHROUT	XTAL1 Control Pin, Vertical Amplitude DAC Output and Chroma Reference Signal Output.
43	43	57	GND1	Chroma/Scanning Ground

STV2238 (IC 801)

Pin N°			Symbol	Description
STV224X/8X	STV223X	STV223XD		
SDIP56	SDIP56	TQFP64		
-	44	58	CVBSOUT1	Main Video Switch Output
45	45	59	$V_{CC}1$	Chroma/Scanning Power Supply (8 V)
46	46	61	BCL/SAF	Beam Current Limiter Control Voltage and Safety Input (XRAY)
47	47	62	VERT	Vertical Output Pulse
48	48	63	HOUT	Horizontal Output Pulse
49	49	64	LFB/SSC	Line Flyback Input and Super-sandcastle Output
50	50	1	SLPF	Scanning PLL Filter
51	51	2	SCL	I^2C Bus Clock Input
52	52	3	SDA	I^2C Bus Data Input
53	53	4	$V_{CC}D$	Digital Supply Voltage (5 V)
54	54	5	GND D	Digital Ground
55	55	6	AUDIOOUT	Main Audio Output
56	56	7	FMCAP	FM Demodulation Capacitor
-	-	15	SAW	Filter Switch Control
25	-	30	BEXT/UEXT	External Blue Input or external U input
26	-	31	GEXT/YEXT	External Green Input or external Y input
27	-	32	REXT/VEXT	External Red Input or external V input
28	-	33	FBEXT	External Fast Blanking Input
24	-	36	APR	Automatic RGB Peak Regulation
-	-	51	HALFCTR	Half Contrast Input
44	-	60	CVBSOUT2	Second Video Switch Output

Note: 1. Input/Output not available in STV2236 and STV2236D versions.

PIN CONNECTIONS STV223XD (TQFP64)



Off-line SMPS Controller with 600 V Sense CoolMOS on Board

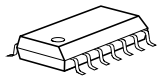
TDA16831-4

Preliminary Data

Overview

Features

- PWM controller + sense CoolMOS attached in one compact package
- 600 V avalanche rugged CoolMOS
- Typical R_{DSon} = 0.5 ... 3.5 Ω at T_j = 25 °C
- Only 4 active Pins
- Standard DIP-8 Package for Output Power ≤40 W
- Only few external components required
- Low start up current
- Current mode control
- Input Undervoltage Lockout
- Max. Duty Cycle limitation
- Thermal Shutdown
- Modulated Gate Drive for low EMI



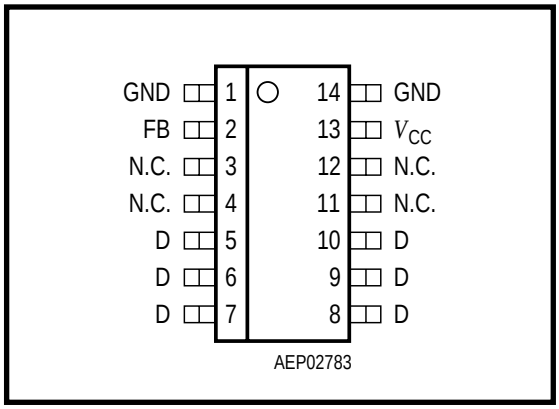
P-DSO-14-11

Type	Ordering Code	Package
TDA 16831	Q67000-A9420	P-DIP-8-6
TDA 16832	Q67000-A9422	P-DIP-8-6
TDA 16833	Q67000-A9389	P-DIP-8-6
TDA 16834	samples	P-DIP-8-6
TDA 16831G	Q67000-A9421	P-DSO-14-11
TDA 16832G	Q67000-A9423	P-DSO-14-11
TDA 16833G	Q67000-A9419	P-DSO-14-11

TDA16833 (IC 701)

Device	Output Power Range/ Required Heatsink[1)]	Output Power Range/ Required Heatsink[1)]
	V_{in} = 85-270 VAC	V_{in} = 190-265 VAC
TDA 16831	10 W / no heatsink	10 W / no heatsink
TDA 16832	20 W / 6 cm^2	20 W / no heatsink
TDA 16833	30 W / 3 cm^2	40 W / no heatsink
TDA 16834	40 W / 3 cm^2	40 W / no heatsink
TDA 16831G	10 W / no heatsink	10 W / no heatsink
TDA 16832G	20 W / 8 cm^2	20 W / no heatsink
TDA 16833G	20 W / no heatsink	40 W / 3 cm^2

1) T_A = 70 °C



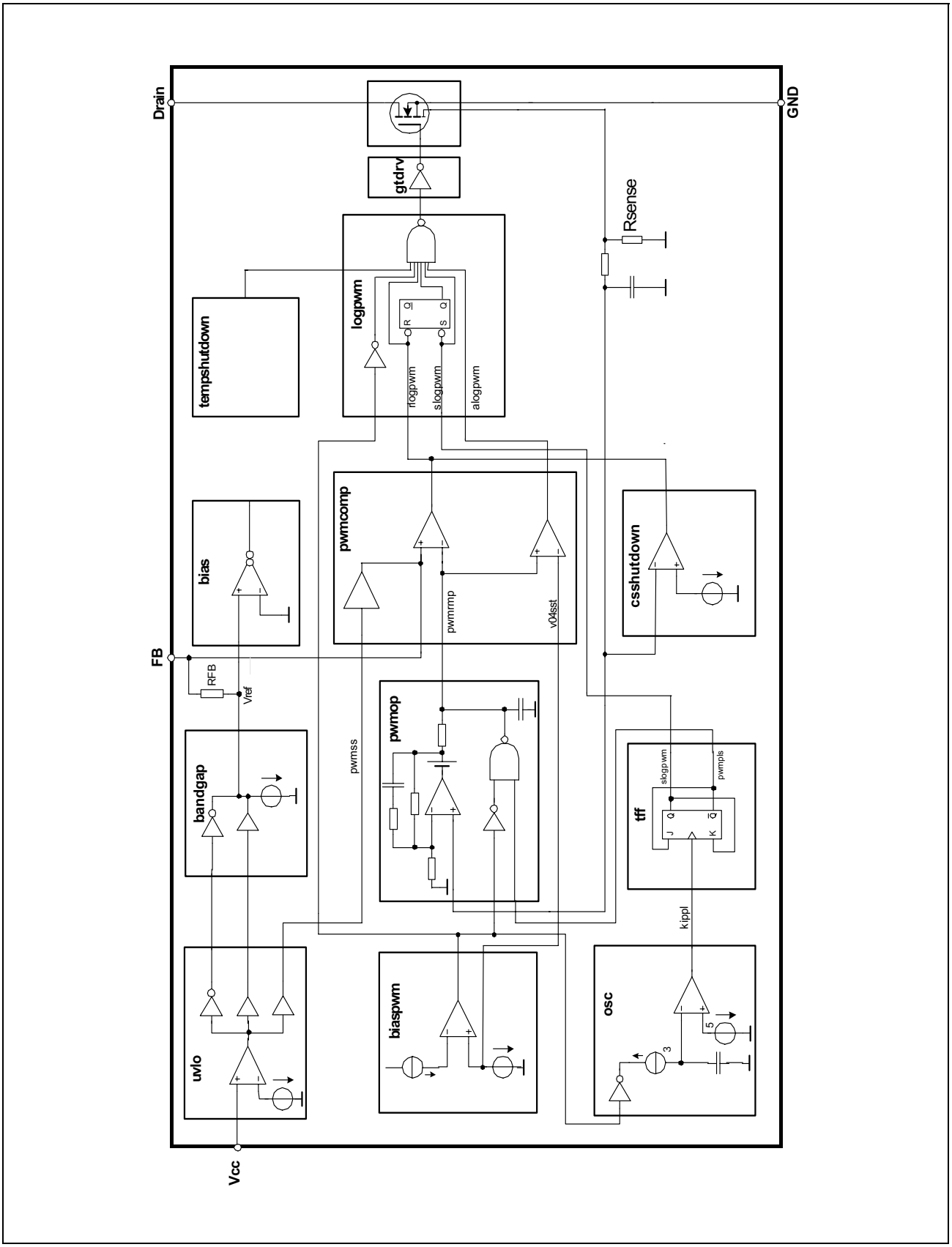
TDA16831G/2G/3G

P-DSO-14-11 for Applications with $P_{out} \leq$ 20 W: TDA 16831G/2G/3G

Pin	Symbol	Function
1	GND	PWM GND and CoolMOS Source
2	FB	PWM Feedback Input
3	N.C.	Not Connected
4	N.C.	Not Connected
5, 6, 7	D	600 V Drain CoolMOS
8, 9, 10	D	600 V Drain CoolMOS
11	N.C.	Not Connected
12	N.C.	Not Connected
13	V_{CC}	PWM Supply Voltage
14	GND	PWM GND and Source of CoolMOS

TDA16833 (IC 701)

Block Diagram



DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTE:

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.

2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

NOTE:

1. The unit of resistance «ohm»is omitted (K=1000 ohms. M= Megaohm).
2. All resistors are 1/8 watt. unless otherwise noted.
3. All capacitors are µF, unless otherwise noted (P= µµF).
4. The capacitor with Part No. RC-FZ4XXXBMNJ is designed to with stand 50V.

IMPOTANT SAFETY NOTE:

PARTS MARKED WITH « △ » ( ) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (–•–•–) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE.
WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

CAUTION

This circuit diagram is original one, therefore there may be slight difference from yours.

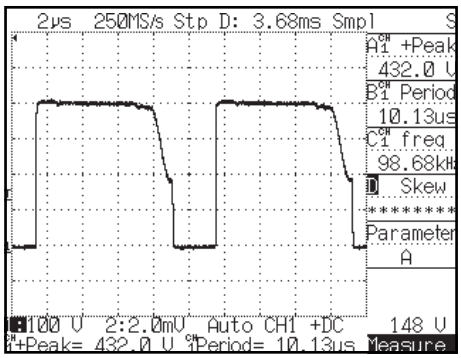
Waveform Measurement Condition:

1. Test Equipment: DIGITAL SLPE LECROY.

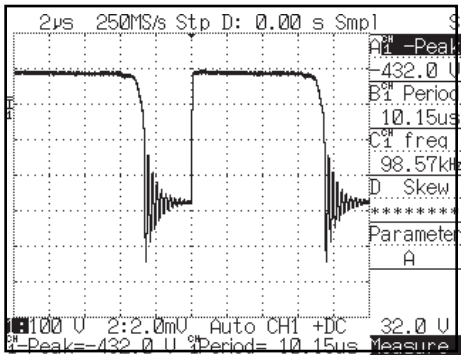
2. Test Conditions: CH-12; COLOUR BARS; 70dB FROM RF INPUT

3. TV Condition: PICTURE AND AUDIO : SETTINGS → FACTORY PRESETS

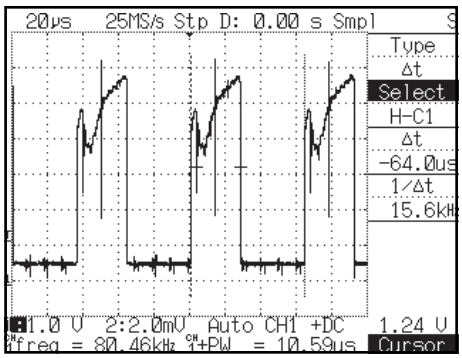
Waveform.



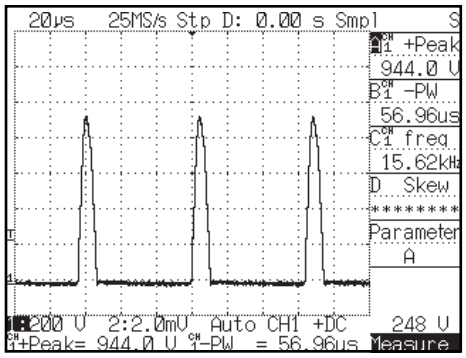
(1) Vp PRIMARY



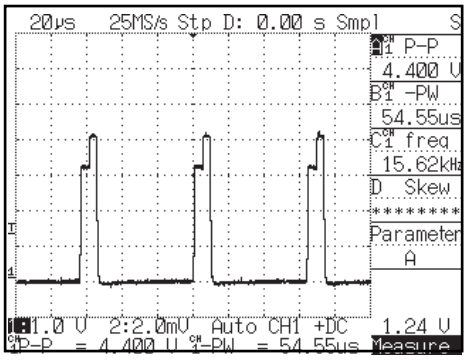
(2) Vp SECUNDARY



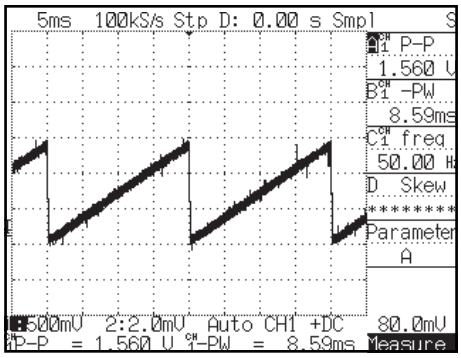
(3) H-CONTROL



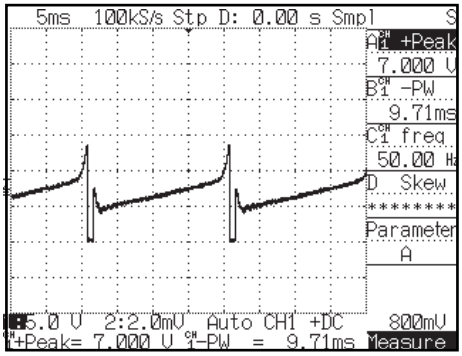
4 Vc HORIZONTAL



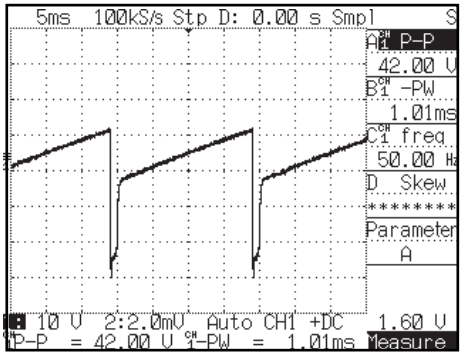
5 SANDCASTLE



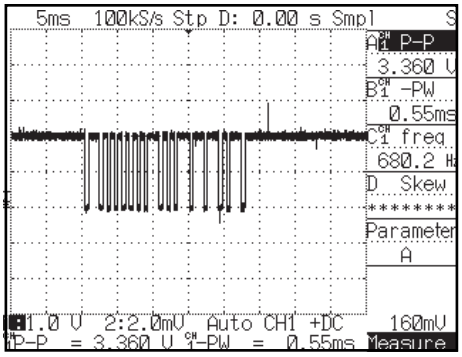
6 VERTICAL INPUT



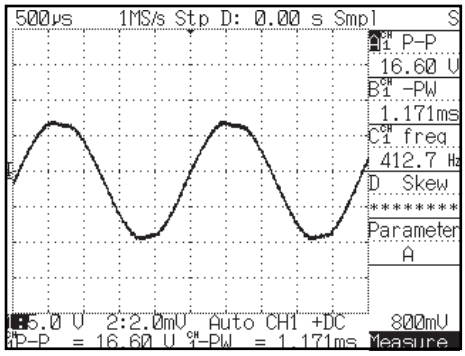
7 VERTICAL



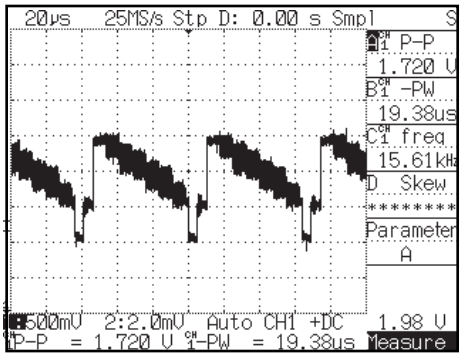
8 VERTICAL OUTPUT



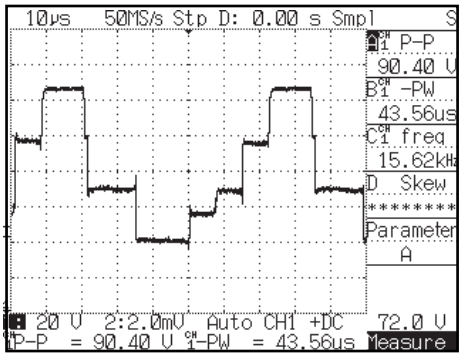
9 REMOTE CONTROL



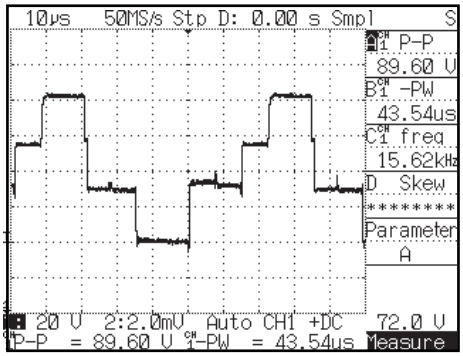
10 OUT SPEAKER



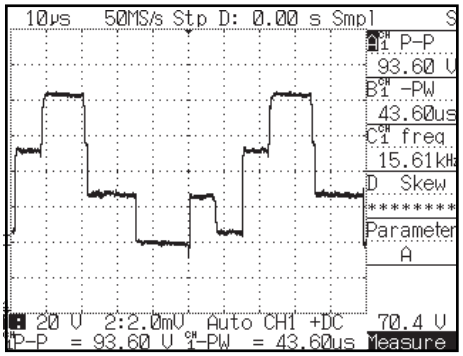
11 IF VIDEO OUT



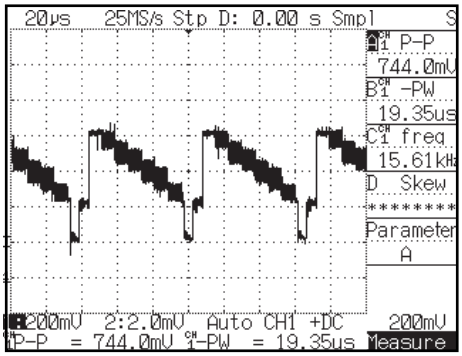
12 RED OUT



13 GREEN OUT



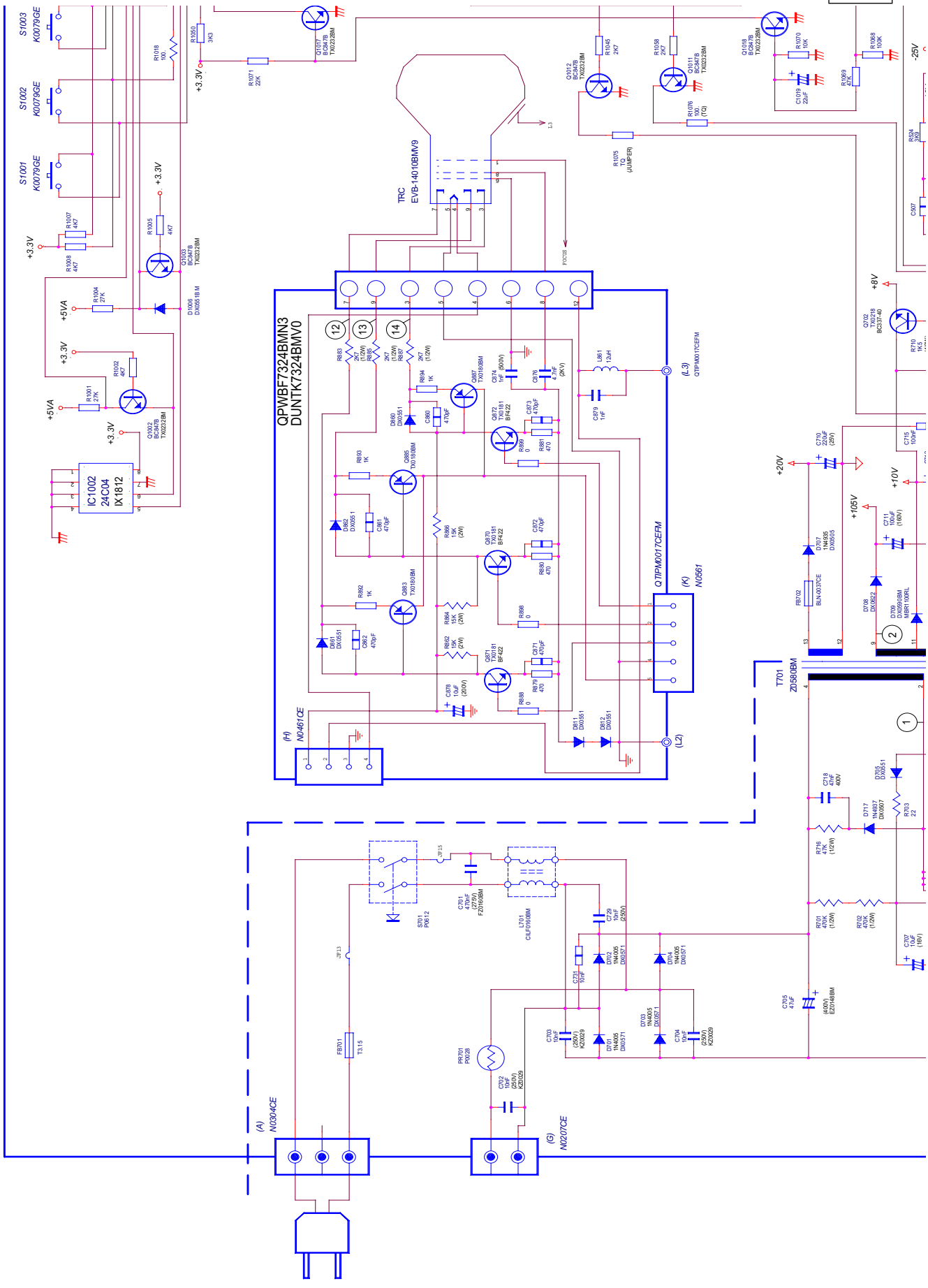
14 BLUE OUT



15 VIDEO INPUT TXT uC

SCHEMATIC DIAGRAM (00 Version)

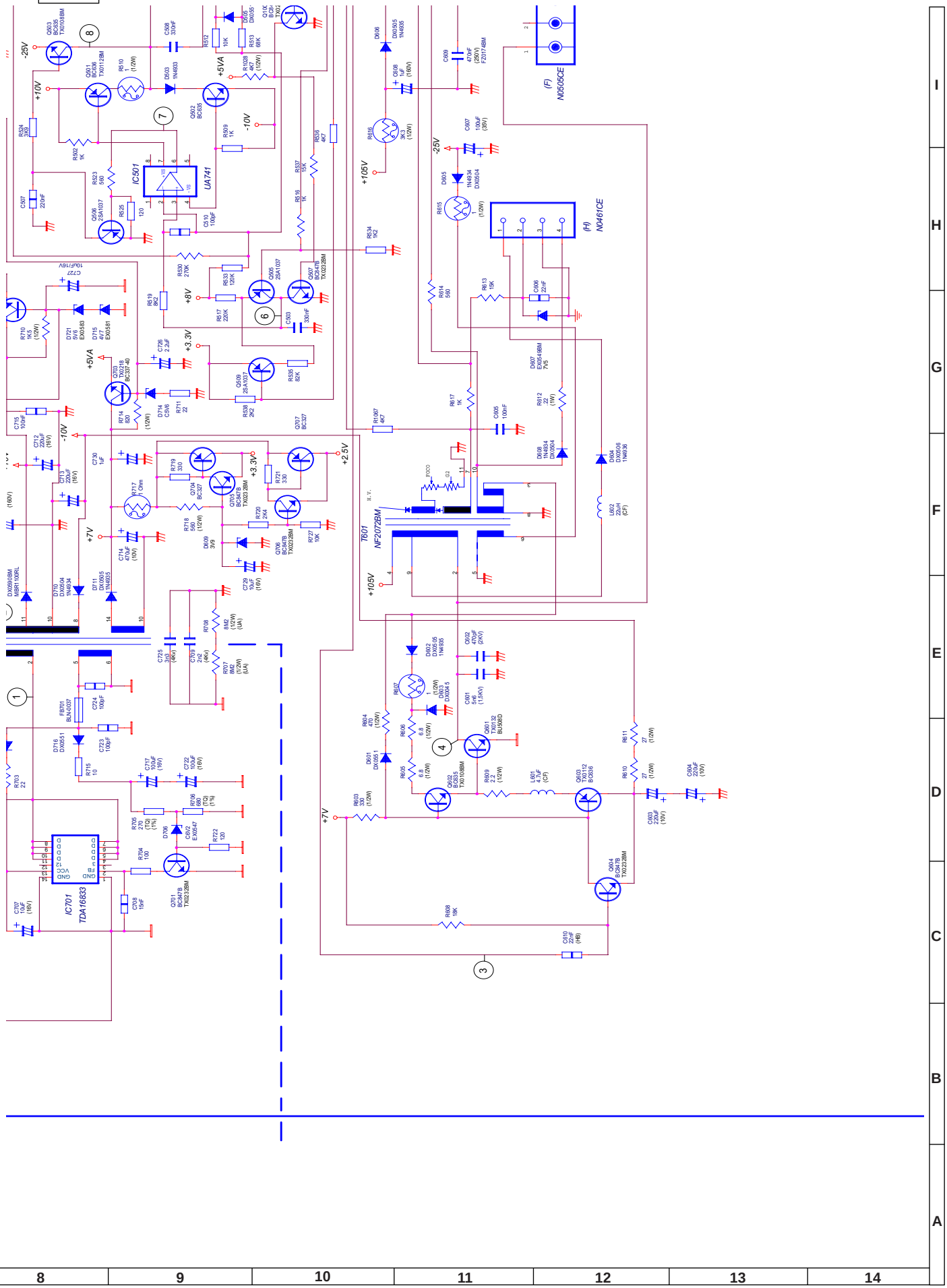
Page 28



Page 27

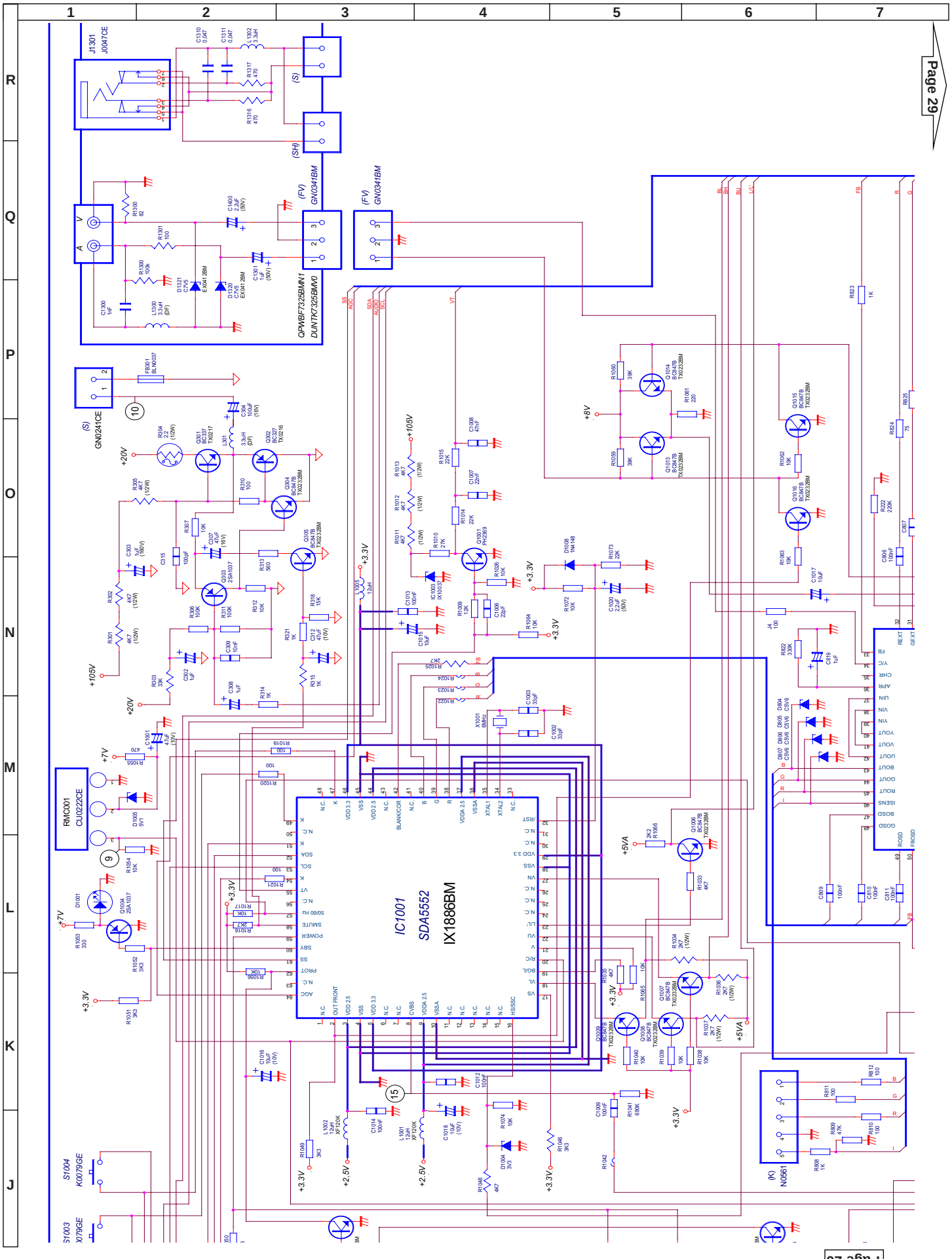
SCHEMATIC DIAGRAM (00 Version)

Page 29

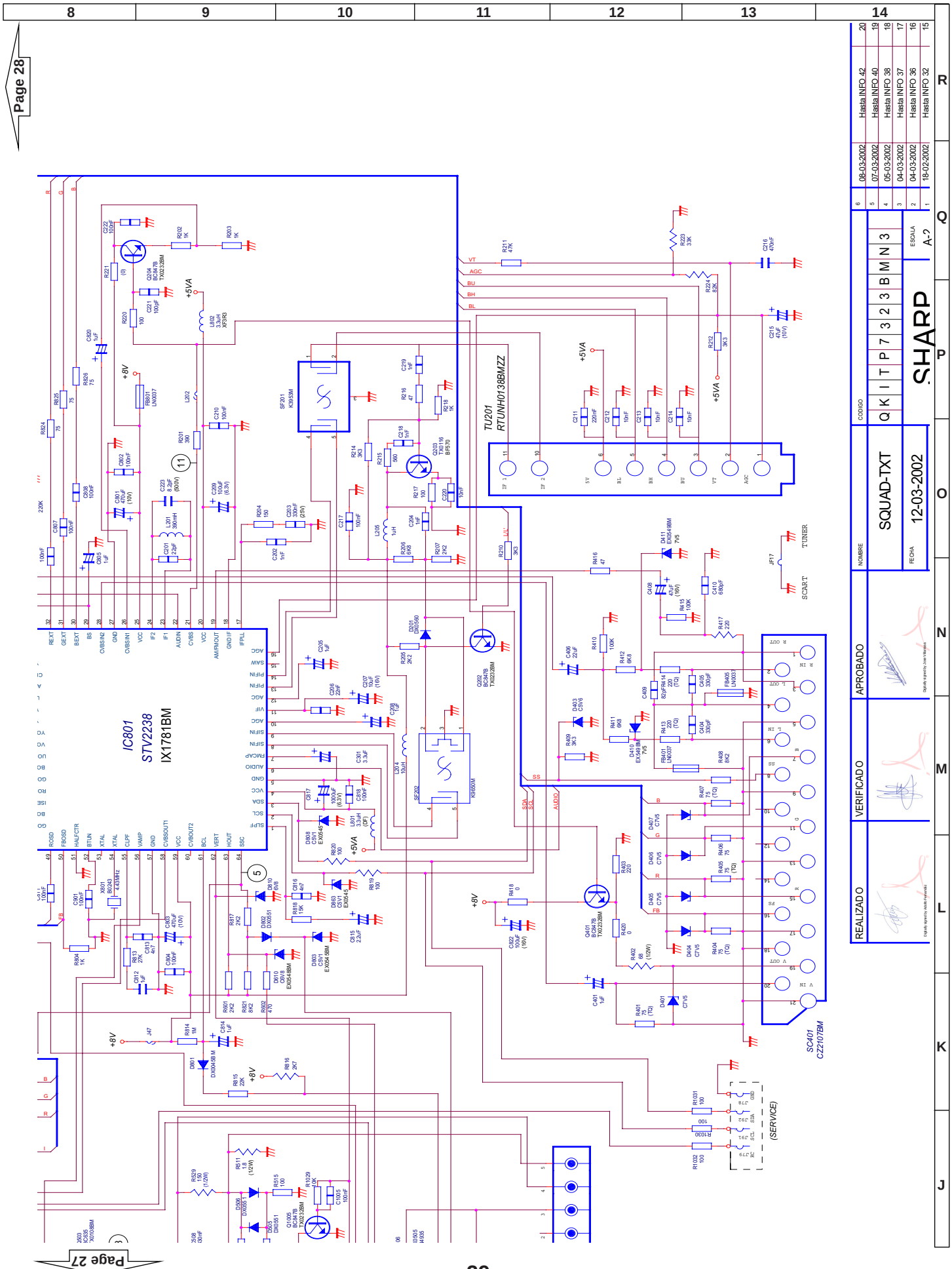


Page 26

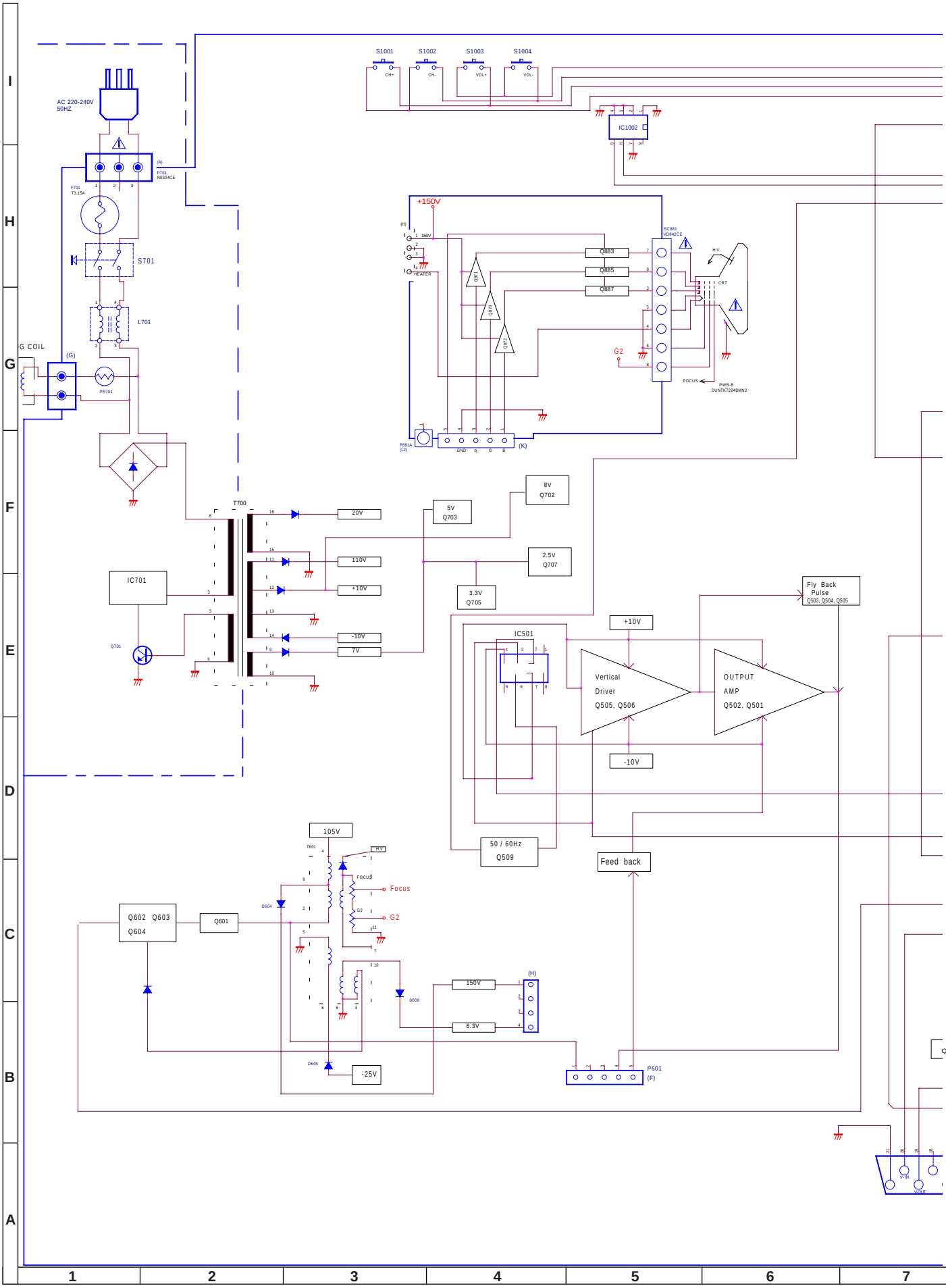
SCHEMATIC DIAGRAM (00 Version)



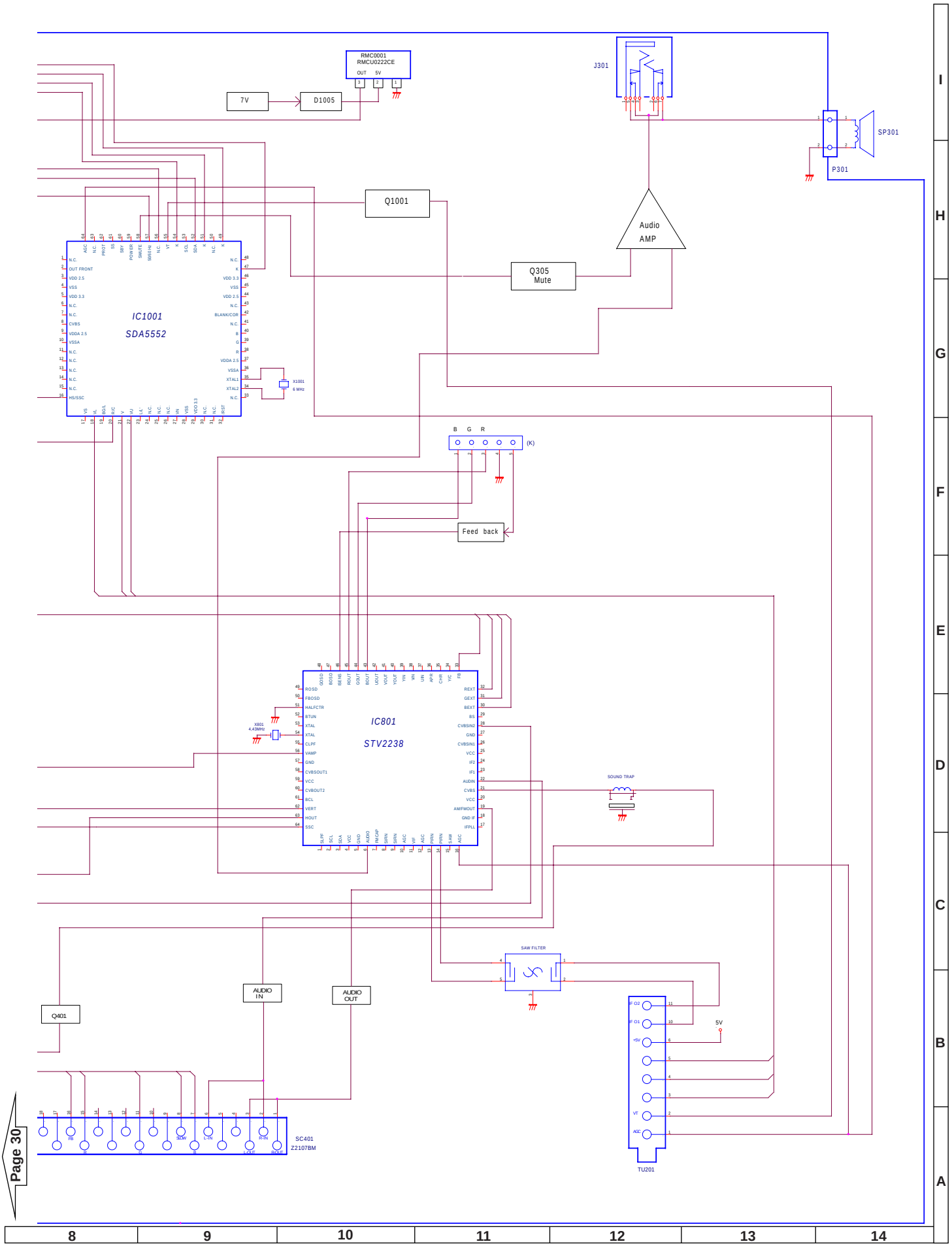
SCHEMATIC DIAGRAM (00 Version)



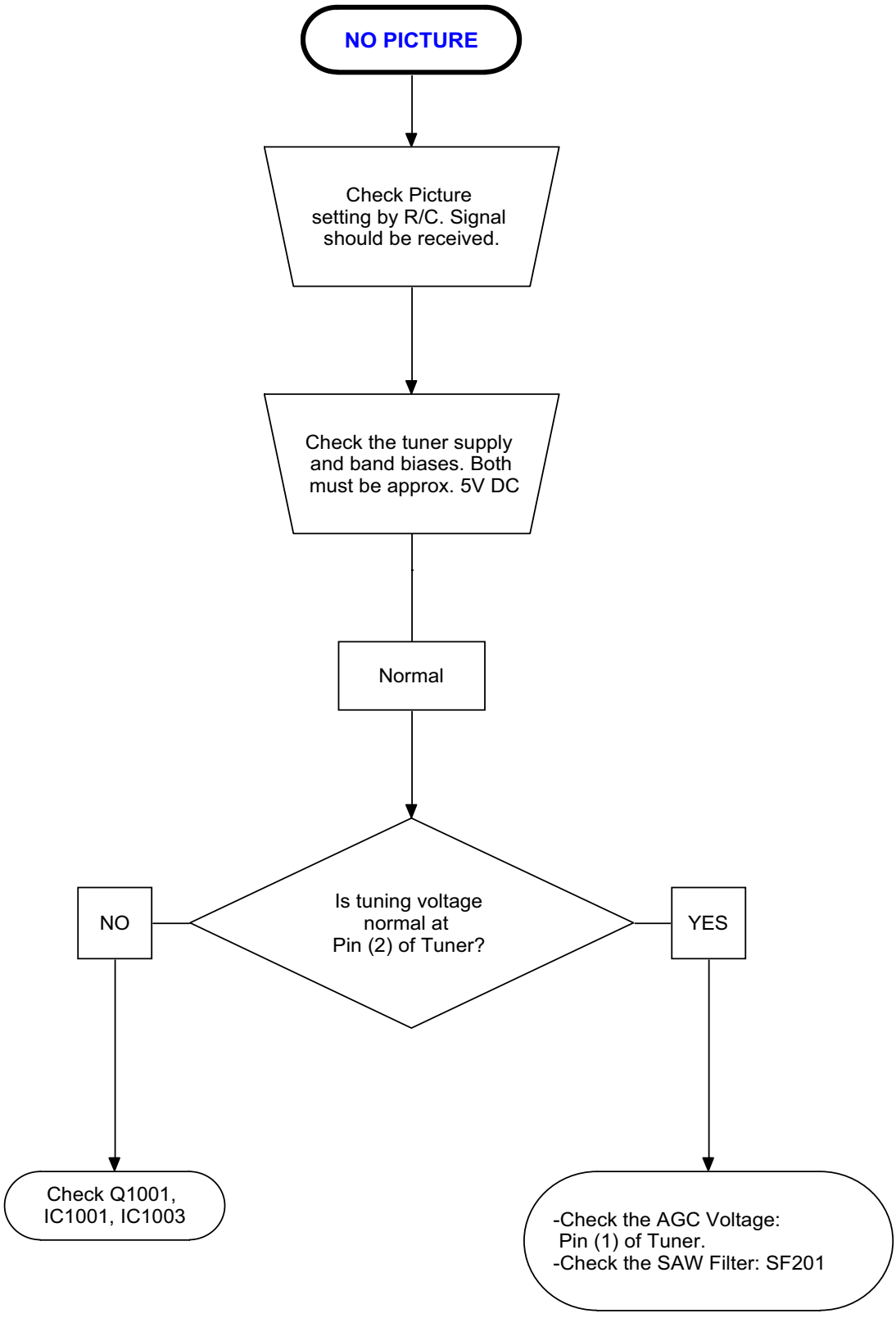
BLOCK DIAGRAM

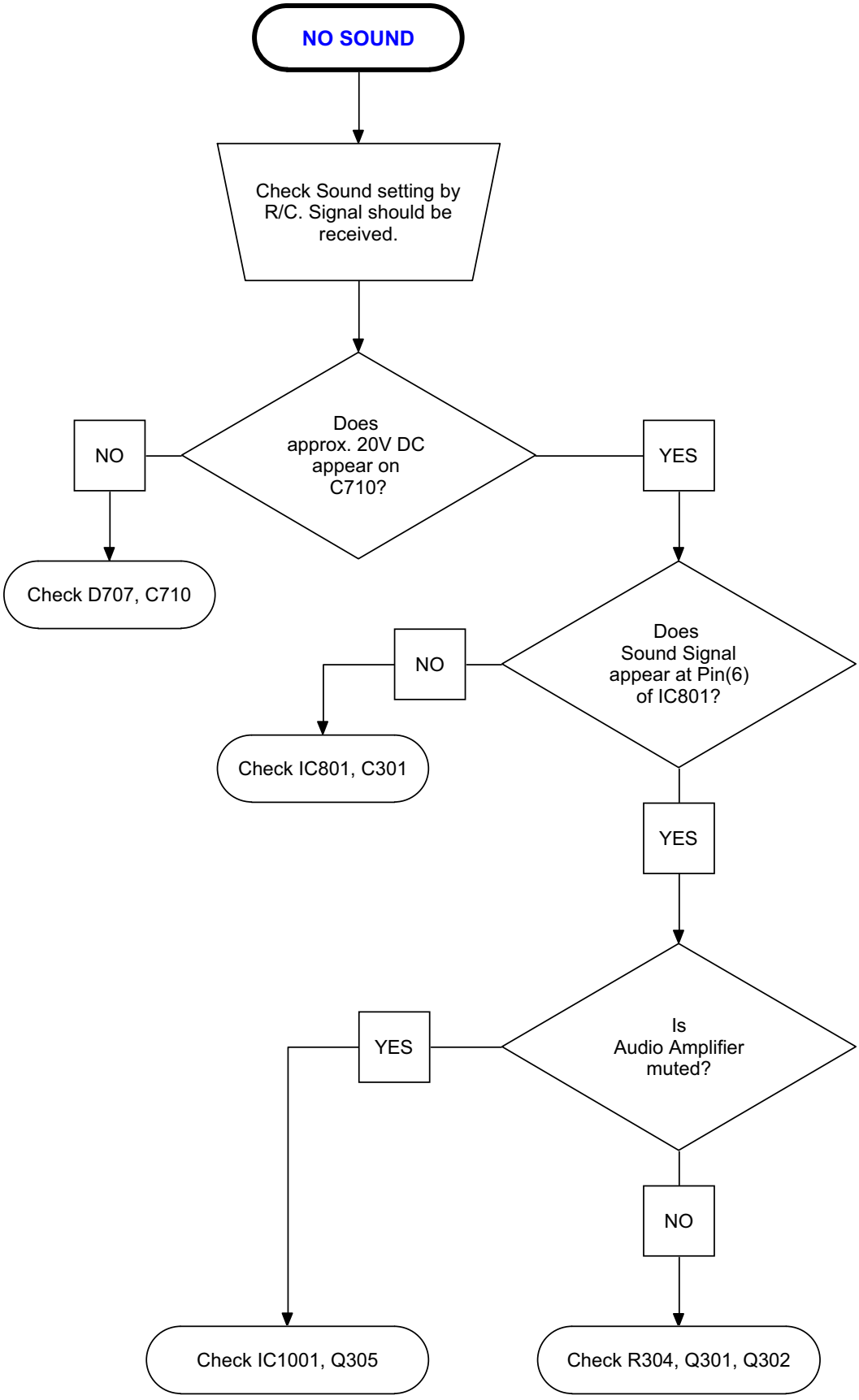


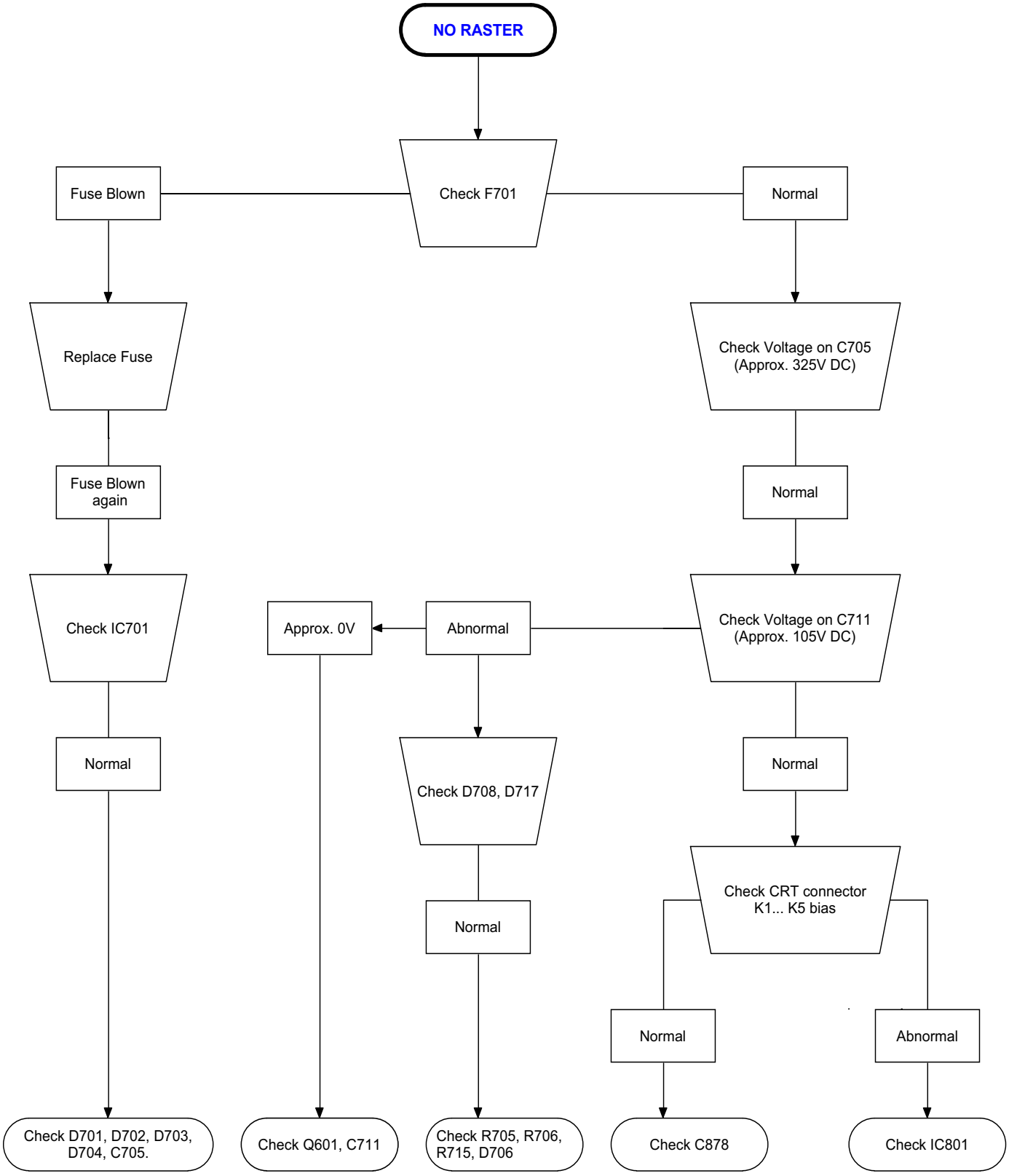
BLOCK DIAGRAM

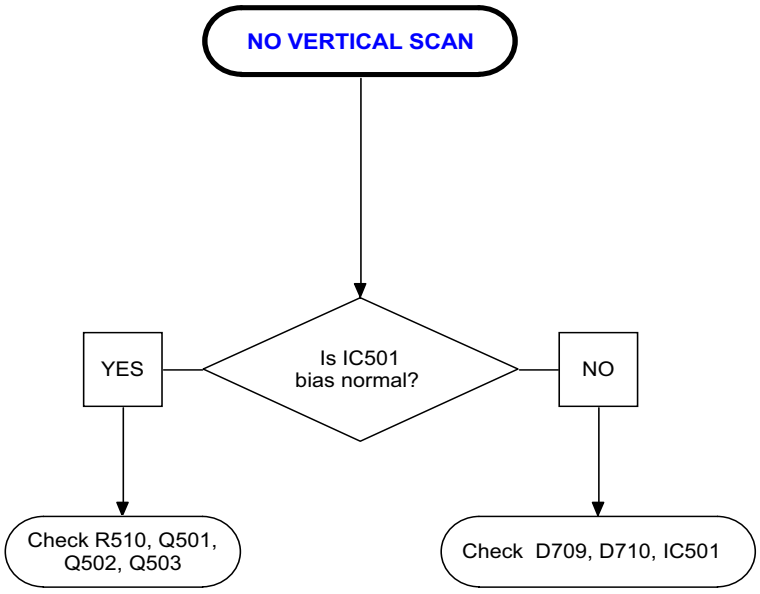


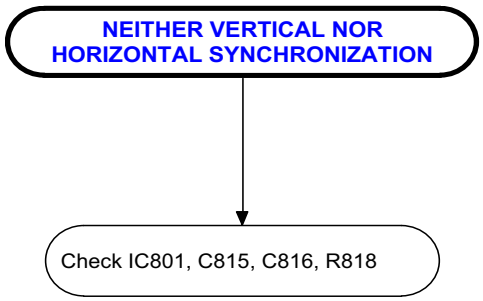
TROUBLESHOOTING TABLES.

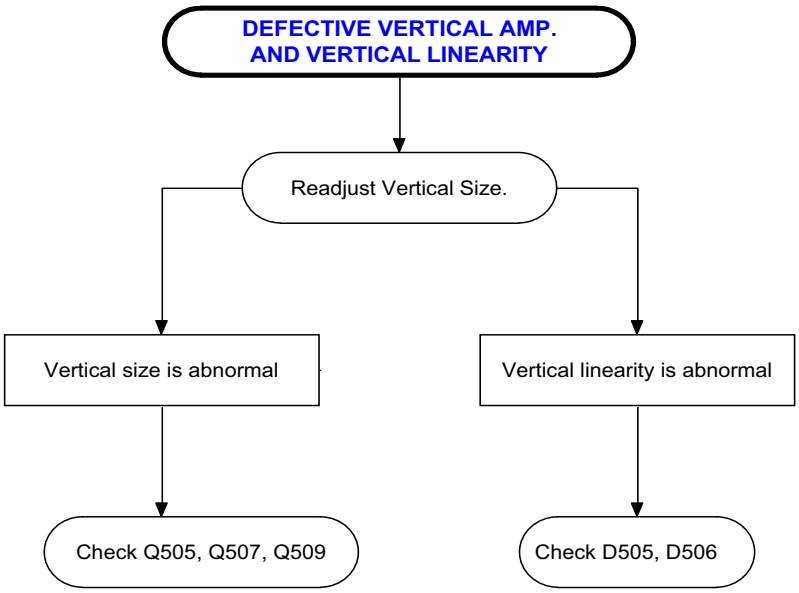

NO PICTURE
Check Picture setting by R/C. Signal should be received.
Check the tuner supply and band biases. Both must be approx. 5V DC
Normal
Is tuning voltage normal at Pin (2) of Tuner?
NO
YES
Check Q1001, IC1001, IC1003
-Check the AGC Voltage: Pin (1) of Tuner.
-Check the SAW Filter: SF201

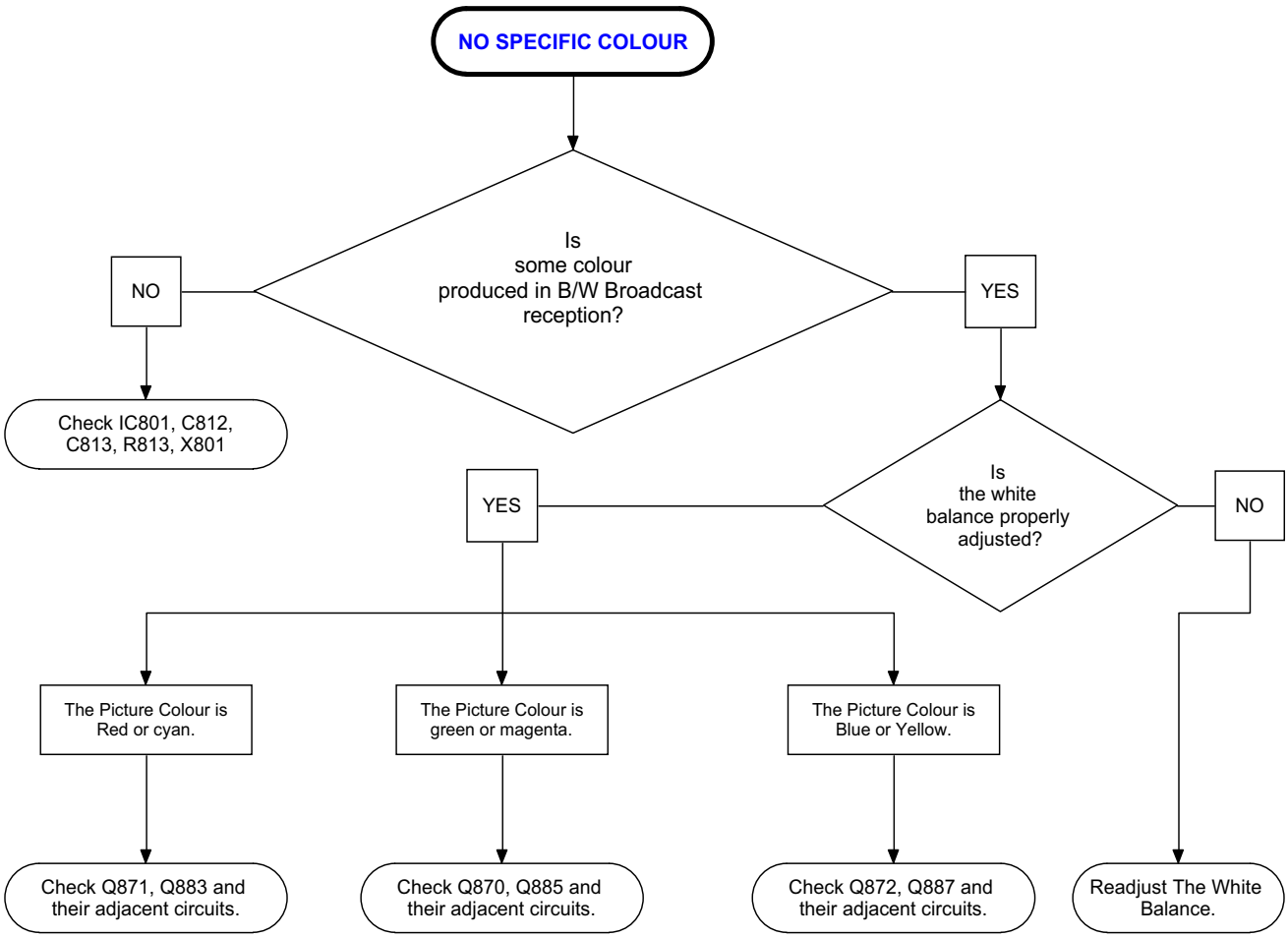

NO SOUND
Check Sound setting by R/C. Signal should be received.
Does approx. 20V DC appear on C710?
NO
YES
Check D707, C710
Does Sound Signal appear at Pin(6) of IC801?
NO
Check IC801, C301
YES
Is Audio Amplifier muted?
YES
NO
Check IC1001, Q305
Check R304, Q301, Q302

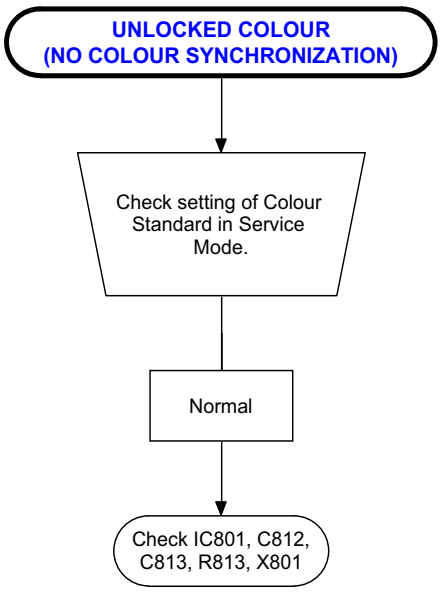

NO RASTER
Check F701
Fuse Blown
Normal
Replace Fuse
Check Voltage on C705
(Approx. 325V DC)
Fuse Blown
again
Normal
Check IC701
Approx. 0V
Abnormal
Check Voltage on C711
(Approx. 105V DC)
Normal
Check D708, D717
Normal
Check CRT connector
K1... K5 bias
Normal
Abnormal
Normal
Check D701, D702, D703,
D704, C705.
Check Q601, C711
Check R705, R706,
R715, D706
Check C878
Check IC801


NO VERTICAL SCAN
Is IC501
bias normal?
YES
NO
Check R510, Q501,
Q502, Q503
Check D709, D710, IC501


NEITHER VERTICAL NOR
HORIZONTAL SYNCHRONIZATION
Check IC801, C815, C816, R818


DEFECTIVE VERTICAL AMP.
AND VERTICAL LINEARITY
Readjust Vertical Size.
Vertical size is abnormal
Vertical linearity is abnormal
Check Q505, Q507, Q509
Check D505, D506


NO SPECIFIC COLOUR
Is some colour produced in B/W Broadcast reception?
NO
YES
Check IC801, C812, C813, R813, X801
Is the white balance properly adjusted?
YES
NO
The Picture Colour is Red or cyan.
The Picture Colour is green or magenta.
The Picture Colour is Blue or Yellow.
Check Q871, Q883 and their adjacent circuits.
Check Q870, Q885 and their adjacent circuits.
Check Q872, Q887 and their adjacent circuits.
Readjust The White Balance.


UNLOCKED COLOUR (NO COLOUR SYNCHRONIZATION)
Check setting of Colour Standard in Service Mode.
Normal
Check IC801, C812, C813, R813, X801

PART LIST

REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual. Electrical components having such features are identified by △ in the Replacement Part List.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.
Replacement parts not shown in this service manual may create shock fire, or other hazards.

HOW TO ORDER REPLACEMENT PARTS

To have your order completed promplty and corretly please supply the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

MARK *: SPARE PARTS DELIVERY SECTION

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
			PICTURE TUBE			
△		VB34AGT1401*N	TRC A34AGT14X01 CHUNG. PUSH/T	S	BK	CB
△		RCILG0415BMZZ	DEGUSSING COIL 14"	S	AF	AM
	PRINTED WIRING BOARDS (Not replacement item)					
	PWB-A	DSETU7323CJV0	ADJUST MOTHER SET 37GT28FP	S	BG	BY
	PWB-B	DUNTK7324BMV0	UNIT CRT INS HAND	S	AH	AT
	PWB-C	DUNTK7325BMV0	FRONTAL AUDIO VIDEO HEADPHO	S	AK	AW
	PWB-A		**MOTHER UNIT**			
			TUNER			
	TU 0201	RTUNH0138BMZZ	TUNER VST CTT5045 THOMSON HY	S	AL	AX
			INTEGRATED CIRCUITS			
	IC 0501	RH-IX1783BMZZ	IC UA741CDR TEXAS INSTRUMENT	S	AA	AD
	IC 0701	RH-IX1782BMZZ	IC TDA16833 SIEMENS	S	AD	AL
	IC 0801	RH-IX1781BMZZ	IC STV2238 SGS-THOMSON	S	AM	AX
	IC 1001	RH-IX1886BMZZ	IC SDA5552-A007-TVTPRO-1 TXT PA	S	--	--
	IC 1002	RH-IX1812BMZZ	EEPROM M24C04-WMN6T ST MICR	S	AB	AF
	IC 1003	RH-IX0037CEZZ	IC UPC574J 33V NEC	S	AF	AD
			TRANSISTORS			
	Q 0202	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0203	RH-TX0116BMZZ	TRT BF570 SMD	S	AA	AC
	Q 0204	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0301	RH-TX0217BMZZ	TRT BC337 PHILIPS	S	AA	AB
	Q 0302	RH-TX0216BMZZ	TRT BC327	S	AA	AA
	Q 0303	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0304	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0305	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0401	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0501	RH-TX0112BMZZ	TRT BC636	S	AA	AB
	Q 0502	RH-TX0108BMZZ	TRT BC635	S	AA	AC
	Q 0503	RH-TX0108BMZZ	TRT BC635	S	AA	AC
	Q 0505	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0506	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0507	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0509	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 0601	RH-TX0132BMZZ	TRT BU508DFI	S	AF	AM
	Q 0602	RH-TX0108BMZZ	TRT BC635	S	AA	AC
	Q 0603	RH-TX0112BMZZ	TRT BC636	S	AA	AB
	Q 0604	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0701	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0702	RH-TX0218BMZZ	TRT BC337-40 PHILIPS	S	AA	AA
	Q 0703	RH-TX0218BMZZ	TRT BC337-40 PHILIPS	S	AA	AA
	Q 0704	RH-TX0216BMZZ	TRT BC327	S	AA	AA
	Q 0705	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0706	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 0707	RH-TX0216BMZZ	TRT BC327	S	AA	AA
	Q 1001	RH-TX0111BMZZ	TRT PH-2369 PHILIPS	S	AA	AB
	Q 1002	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1003	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1004	VS2SA1037KQ-1	TRT BC807 SMD	S	AA	AA
	Q 1005	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1006	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1007	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1008	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1009	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1010	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	Q 1011	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1012	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1013	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1014	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1015	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1016	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1017	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
	Q 1018	RH-TX0232BMZZ	TRT BC847B SMD PHILIPS	S	AA	AA
			DIODES			
	D 0201	RH-DX0560BMZZ	DIODE BA482 PHILIPS	S	AA	AB
	D 0401	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0402	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0403	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0404	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0405	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0406	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0407	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0410	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0411	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0503	RH-DX0503BMZZ	DIODE 1N4933	S	AB	AB
	D 0505	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0506	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0601	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0602	RH-DX0577BMZZ	DIODE 1N4935 ACPA	S	AB	AE
	D 0603	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0604	RH-DX0506BMZZ	DIODE 1N4936	S	AB	AB
	D 0605	RH-DX0504BMZZ	DIODE 1N4934	S	AB	AB
	D 0606	RH-DX0577BMZZ	DIODE 1N4935 ACPA	S	AB	AE
	D 0607	RH-EX0549BMZZ	ZENER DIODE TZMC7V5 TFK SMD	S	AA	AA
	D 0608	RH-DX0504BMZZ	DIODE 1N4934	S	AB	AB
	D 0609	RH-EX0542BMZZ	ZENER DIODE TZMC3V9 TFK SMD	S	AA	AA
	D 0610	RH-EX0548BMZZ	ZENER DIODE TZMC6V8 TFK SMD	S	AA	AA
	D 0701	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0702	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0703	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0704	RH-DX0571BMZZ	DIODE 1N4005 ACPA	S	AA	AA
	D 0705	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0706	RH-EX0584BMZZ	ZENER DIODE TZMB6V2 TFK SMD 2	S	AA	AA
	D 0707	RH-DX0577BMZZ	DIODE 1N4935 ACPA	S	AB	AE
	D 0708	RH-DX0622BMZZ	DIODE BYV27/600 VISHAY	S	AA	AD
	D 0709	RH-DX0590BMZZ	DIODE MBR1100RL MOTOROLA	S	AD	AE
	D 0710	RH-DX0590BMZZ	DIODE MBR1100RL MOTOROLA	S	AD	AE
	D 0711	RH-DX0577BMZZ	DIODE 1N4935 ACPA	S	AB	AE
	D 0714	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0715	RH-DX0581BMZZ	ZENER DIODE TZMB 4V7 TFK	S	AA	AA
	D 0716	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0717	RH-DX0507BMZZ	DIODE 1N4937	S	AA	AB
	D 0721	RH-EX0583BMZZ	ZENER DIODE TZMB5V6 TFK SMD 2	S	AA	AA
	D 0801	RH-DX0045BMZZ	DIODE 1N4148	S	AA	AA
	D 0802	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0803	RH-EX0545BMZZ	ZENER DIODE TZMC5V1 TFK SMD	S	AA	AA
	D 0804	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0805	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0806	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0807	RH-EX0546BMZZ	ZENER DIODE TZMC5V6 TFK SMD	S	AA	AA
	D 0808	RH-EX0545BMZZ	ZENER DIODE TZMC5V1 TFK SMD	S	AA	AA
	D 0863	RH-EX0545BMZZ	ZENER DIODE TZMC5V1 TFK SMD	S	AA	AA
	D 1001	RH-PX0104BMZZ	LED ROJO	S	AB	AC
	D 1004	RH-EX0540BMZZ	ZENER DIODE TZMC3V3 TFK SMD	S	AA	AA
	D 1005	RH-EX0545BMZZ	ZENER DIODE TZMC5V1 TFK SMD	S	AA	AA
	D 1006	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 1008	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
			PACKAGED CIRCUITS			
	PR 0701	RMPTP0028CEZZ	PTC RESISTOR	S	AA	AE
	X 0801	RCRSB0243BMZZ	CRYSTAL 473.000.6835 (4,43 MHZ) A	S	AA	AE
	X 1001	RCRSB0100BMZZ	CRYSTAL 6,00 MHZ	S	AD	AG
			COILS			
	L 0201	RCILP0227BMZZ	COIL SMD 390NH LQN1HR39J	S	AC	AE
	L 0202	QJUM-1001CEFW	JUMPER WIRE	S	**	**
	L 0204	VP-DF100K0000	PEAK COIL 10UH 10%	S	AA	AA
	L 0205	VP-DF1R0M0000	PEAK COIL 1UH 20%	S	AA	AA
	L 0301	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0601	VP-CF4R7K0000	PEAK COIL 4,7UH 10%	S	AB	AB
	L 0602	VP-CF220K0000	PEAK COIL 22UH 10%	S	AA	AA
△	L 0701	RCILF0160BMZZ	AC.FILTER 30MH MURATA	S	AB	AF
	L 0801	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 0802	VP-XF3R3K0000	PEAK COIL 3.3UH 10% 1/8W	S	AA	AB
	L 1001	VP-XF120K0000	PEAK COIL 12UH 10% 1/8W	S	AA	AA
	L 1002	VP-XF120K0000	PEAK COIL 12UH 10% 1/8W	S	AA	AA
	L 1005	VP-XF120K0000	PEAK COIL 12UH 10% 1/8W	S	AA	AA
			CERAMIC FILTERS			
	SF 0201	RFILC0278BMZZ	SAW FILTER K3953M SIEMENS	S	AK	AM
	SF 0202	RFILC0293BMZZ	SAW FILTER K9650M EPC05	S	AD	AM
			TRANSFORMERS			
△	T 0601	RTRNF2072BMZZ	SMT 8228 001 3493 PHILIPS 14"	S	AK	AW
△	T 0701	RTRNZ0584BMZZ	SMT 14" 8228 001 35002 PHILIPS	S	AD	AL
			CAPACITORS			
	C 0201	VCCCTV1HH220J	CERAM C 22PF 50V 2125SMD	S	AA	AA
	C 0202	VCKYTV1HB102K	CERAM C 1NF 50V 2125SMD	S	AA	AA
	C 0203	VCKYTV1EF334Z	CERAM C 330NF 25V 2125SMD	S	AA	AB
	C 0204	VCKYTV1HB102K	CERAM C 1NF 50V 2125SMD	S	AA	AA
	C 0205	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0206	VCKYTV1HF223Z	CERAM C 22NF 50V 2125SMD	S	AA	AA
	C 0207	VCEA0A1HW106M	ELEC C 10UF 20% 50V	S	AA	AA
	C 0208	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0209	VCEAGA0JW107M	ELEC C 100UF 20% 6,3V	S	AA	AA
	C 0210	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0211	VCKYTV1EF224Z	CERAM C 220NF 25V 2125SMD	S	AA	AA
	C 0212	VCKYTV1HF103Z	CERAM C 10NF 50V 2125SMD	S	AA	AA
	C 0213	VCKYTV1HF103Z	CERAM C 10NF 50V 2125SMD	S	AA	AA
	C 0214	VCKYTV1HF103Z	CERAM C 10NF 50V 2125SMD	S	AA	AA
	C 0215	VCEA0A1AW476M	ELEC C 47UF 20% 10V	S	AA	AA
	C 0216	VCFYFA1HA474J	FILM CAPACITOR 474 MAT	S	AA	AB
	C 0217	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0218	VCKYTV1HB102K	CERAM C 1NF 50V 2125SMD	S	AA	AA
	C 0219	VCKYTV1HB102K	CERAM C 1NF 50V 2125SMD	S	AA	AA
	C 0220	VCKYTV1HF103Z	CERAM C 10NF 50V 2125SMD	S	AA	AA
	C 0221	VCCCTV1HH101J	CERAM C 100PF 50V 2125SMD	S	AA	AA
	C 0222	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0223	VCCWPA2HL8R2C	C 8,2PF 0,25 N1500 500V	S	AA	AB
	C 0301	VCEA0A1HW335M	ELEC C 3,3UF 20% 50V	S	AA	AA
	C 0302	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0303	VCEAGA2CW105M	ELEC C 1UF 20% 160V	S	AA	AB
	C 0304	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	AA	AA
	C 0307	VCEA0A1CW476M	ELEC C 47UF 20% 16V	S	AA	AA
	C 0308	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0309	VCKYTV1HF103Z	CERAM C 10NF 50V 2125SMD	S	AA	AA
	C 0312	VCEA0A1AW476M	ELEC C 47UF 20% 10V	S	AA	AA
	C 0315	VCCCTV1HH101J	CERAM C 100PF 50V 2125SMD	S	AA	AA
	C 0401	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0404	VCCCTV1HH331J	CERAM C 330PF 50V 2125SMD	S	AA	AA
	C 0405	VCCCTV1HH331J	CERAM C 330PF 50V 2125SMD	S	AA	AA
	C 0406	VCEA0A1HW226M	ELEC C 22UF 20% 50V	S	AA	AA
	C 0408	VCEA0A1CW476M	ELEC C 47UF 20% 16V	S	AA	AA
	C 0409	VCCCTV1HH820J	CERAM C 82PF 50V 2125SMD	S	AA	AA
	C 0410	VCKYTV1HB681K	CERAM C 680PF 50V 2125SMD	S	AA	AA
	C 0503	VCFYFA1HA334J	POL FILM C 330NF 5% 50V	S	AA	AB
	C 0507	VCKYTV1EF224Z	CERAM C 220NF 25V 2125SMD	S	AA	AA
	C 0508	VCFYFA1HA334J	POL FILM C 330NF 5% 50V	S	AA	AB

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	C 0510	VCCCTV1HH101J	CERAM C 100PF 50V 2125SMD	S	AA	AA
	C 0601	RC-KZ0038CEZZ	CERAMIC CAP 470pF 2KV	S	AA	AB
	C 0602	RC-FZ0144BMZZ	POL C B32650 5N6 1,6KV	S	AE	AE
	C 0603	VCEA0A1AW227M	ELEC C 220UF 20% 10V	S	AA	AA
	C 0604	VCEA0A1AW227M	ELEC C 220UF 20% 10V	S	AA	AA
	C 0605	VCFYFA1HA104J	POL FILM C 100NF 5% 50V	S	AA	AA
	C 0606	VCKYTV1HF223Z	CERAM C 22NF 50V 2125SMD	S	AA	AA
	C 0607	VCEA0A1VW107M	ELEC C 100UF 35V	S	AA	AA
	C 0608	VCEAGA2CW105M	ELEC C 1UF 20% 160V	S	AA	AB
	C 0609	RC-FZ0174BMZZ	POL C B32652 470NF 250V	S	AA	AC
	C 0610	VCKYTV1HB223K	CERAM C 22NF 50V 2125SMD	S	AA	AA
△	C 0701	RC-FZ0219BMZZ	C 470NF 275V X2 B81130-C1474-M	S	AA	AD
	C 0702	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0704	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0705	RC-EZ0148BMZZ	ELEC C 47uF 400V LPN470M2GN J/	S	AA	AK
	C 0707	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	AA	AA
	C 0708	VCKYTV1HF153Z	CERAM C 15NF 50V 2125SMD	S	AA	AA
△	C 0709	RC-KZ0160BMZZ	CERAM C 2,2NF 4KV X1Y1	S	AA	AD
	C 0710	VCEA0A1EW227M	ELEC C 220UF 20% 25V	S	AA	AA
	C 0711	VCEAGH2CW107M	ELEC C 100MF 20% 160V	S	AA	AF
	C 0712	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	AA	AA
	C 0713	VCEA0A1CW227M	E CAPACITOR 220UF 16V 6.3x11	S	AA	AA
	C 0714	VCEA0A1AW477M	E.CAPACITOR 470UF 10V 6.3x11	S	AA	AA
	C 0715	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0717	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	AA	AA
	C 0718	RC-FZ0156BMZZ	C B32529-B6473K 47nF 400V SIEME	S	AD	AE
	C 0722	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	AA	AA
	C 0723	VCCCTV1HH101J	CERAM C 100PF 50V 2125SMD	S	AA	AA
	C 0724	VCCCTV1HH101J	CERAM C 100PF 50V 2125SMD	S	AA	AA
△	C 0725	RC-KZ0106GEZZ	CERAM C DE1410 E332M-KX	S	AB	AC
	C 0726	VCEA0A1HW225M	ELEC C 2,2UF 20% 50V	S	AA	AA
	C 0727	VCEA0A1HW106M	ELEC C 10UF 20% 50V	S	AA	AA
	C 0729	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	AA	AA
	C 0730	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0731	RC-KZ0029CEZZ	CERAM C 10NF 80,20% 250V	S	AC	AC
	C 0801	VCEA0A1AW477M	E.CAPACITOR 470UF 10V 6.3x11	S	AA	AA
	C 0802	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0803	VCEA0A1AW477M	E.CAPACITOR 470UF 10V 6.3x11	S	AA	AA
	C 0804	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0805	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0806	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0807	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0808	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0809	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0810	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0811	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0812	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0813	VCKYTV1HB472K	CERAM C 4,7NF 50V 2125SMD	S	AA	AA
	C 0814	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0815	VCEA0A1HW225M	ELEC C 2,2UF 20% 50V	S	AA	AA
	C 0816	VCKYTV1HB472K	CERAM C 4,7NF 50V 2125SMD	S	AA	AA
	C 0817	VCEAGA0JW108M	ELEC C 1000UF 20% 6,3V	S	AA	AB
	C 0818	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 0819	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0820	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 0822	VCEA0A1CW107M	ELEC C 100UF 20% 16V	S	AA	AA
	C 0901	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1001	VCEA0A1AW476M	ELEC C 47UF 20% 10V	S	AA	AA
	C 1002	VCCCTV1HH330J	CERAM C 33PF 50V 2125SMD	S	AA	AA
	C 1003	VCCCTV1HH330J	CERAM C 33PF 50V 2125SMD	S	AA	AA
	C 1005	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1006	VCCCTV1HH220J	CERAM C 22PF 50V 2125SMD	S	AA	AA
	C 1007	VCKYTV1HF223Z	CERAM C 22NF 50V 2125SMD	S	AA	AA
	C 1008	VCKYTV1HF473Z	CERAM C 47NF 50V 2125SMD	S	AA	AA
	C 1009	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1012	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1013	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1014	VCKYTV1HF104Z	CERAM C 100NF 50V 2125SMD	S	AA	AA
	C 1015	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	AA	AA
	C 1016	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	AA	AA
	C 1017	VCEA0A1HW106M	ELEC C 10UF 20% 50V	S	AA	AA
	C 1018	VCEA0A1CW106M	ELEC C 10UF 20% 16V	S	AA	AA

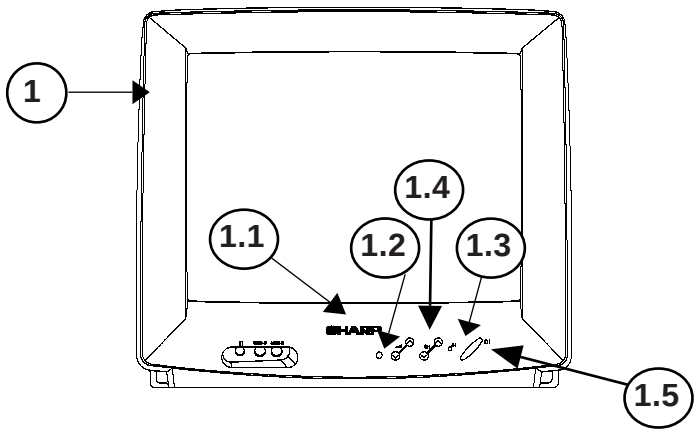
	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	C 1019	VCEA0A1HW226M	ELEC C 22UF 20% 50V	S	AA	AA
	C 1020	VCEA0A1HW225M	ELEC C 2,2UF 20% 50V	S	AA	AA
			RESISTORS			
	R 0201	VRS-TV1JD391J	2125 390 OHM 5% 1/10W SMD	S	AA	AA
	R 0202	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0203	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0204	VRS-TV1JD151J	2125 150 OHM 5% 1/10W SMD	S	AA	AA
	R 0205	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0206	VRS-TV1JD682J	2125 6.8KOHM 5% 1/10W SMD	S	AA	AA
	R 0207	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0210	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 0211	VRS-TV1JD473J	2125 47KOHM 5% 1/10W SMD	S	AA	AA
	R 0212	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 0214	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 0215	VRS-TV1JD561J	2125 560 OHM 5% 1/10W SMD	S	AA	AA
	R 0216	VRS-TV1JD470J	2125 47 OHM 5% 1/10W SMD	S	AA	AA
	R 0217	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0218	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0220	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0221	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 0222	VRS-TV1JD224J	2125 220KOHM 5% 1/10W SMD	S	AA	AA
	R 0223	VRD-RA2BE333J	RES 33KOHM 5% 1/8W	S	AA	AA
	R 0224	VRD-RA2BE823J	RES 82KOHM 5% 1/8W	S	AA	AA
	R 0301	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0302	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0303	VRD-RA2BE333J	RES 33KOHM 5% 1/8W	S	AA	AA
△	R 0304	RR-XZ0204BMZZ	FUS RES 2R2 TAP 5% 1/2W	S	AA	AB
	R 0305	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 0306	VRS-TV1JD104J	2125 100KOHM 5% 1/10W SMD	S	AA	AA
	R 0307	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 0310	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0311	VRS-TV1JD104J	2125 100KOHM 5% 1/10W SMD	S	AA	AA
	R 0312	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 0313	VRS-TV1JD561J	2125 560 OHM 5% 1/10W SMD	S	AA	AA
	R 0314	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0315	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0318	VRS-TV1JD153J	2125 15KOHM 5% 1/10W SMD	S	AA	AA
	R 0321	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0401	VRS-TQ2BD750J	OX RE 75 OHM 5% 1/8W SMD	S	AA	AA
	R 0402	VRD-RA2HD680J	RES 68 OHM 5% 1/2W	S	AA	AA
	R 0403	VRS-TV1JD221J	2125 220 OHM 5% 1/10W SMD	S	AA	AA
	R 0404	VRS-TQ2BD750J	OX RE 75 OHM 5% 1/8W SMD	S	AA	AA
	R 0405	VRS-TQ2BD750J	OX RE 75 OHM 5% 1/8W SMD	S	AA	AA
	R 0406	VRS-TQ2BD750J	OX RE 75 OHM 5% 1/8W SMD	S	AA	AA
	R 0407	VRS-TQ2BD750J	OX RE 75 OHM 5% 1/8W SMD	S	AA	AA
	R 0408	VRS-TV1JD822J	2125 8,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0409	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 0410	VRS-TV1JD104J	2125 100KOHM 5% 1/10W SMD	S	AA	AA
	R 0411	VRS-TV1JD682J	2125 6.8KOHM 5% 1/10W SMD	S	AA	AA
	R 0412	VRS-TV1JD682J	2125 6.8KOHM 5% 1/10W SMD	S	AA	AA
	R 0413	VRS-TQ2BD221J	OX RE 220 OHM 5% 1/8W SMD	S	AA	AA
	R 0414	VRS-TQ2BD221J	OX RE 220 OHM 5% 1/8W SMD	S	AA	AA
	R 0415	VRS-TV1JD104J	2125 100KOHM 5% 1/10W SMD	S	AA	AA
	R 0416	VRS-TV1JD470J	2125 47 OHM 5% 1/10W SMD	S	AA	AA
	R 0417	VRS-TQ2BD221J	OX RE 220 OHM 5% 1/8W SMD	S	AA	AA
	R 0418	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 0420	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 0502	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0509	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
△	R 0510	RR-XZ0200BMZZ	FUS RES 1R0 TAP 5% 1/2W	S	AA	AB
	R 0511	VRD-RA2HD1R8J	RES 1,8 OHM 5% 1/2W	S	AA	AA
	R 0512	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 0513	VRS-TV1JD683J	2125 68KOHM 5% 1/10W SMD	S	AA	AA
	R 0515	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0516	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0517	VRS-TV1JD224J	2125 220KOHM 5% 1/10W SMD	S	AA	AA
	R 0519	VRS-TV1JD822J	2125 8,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0523	VRD-RA2BE561J	RES 560 OHM 5% 1/8W	S	AA	AA
	R 0524	VRS-TV1JD392J	2125 3.9KOHM 5% 1/10W SMD	S	AA	AA
	R 0525	VRS-TV1JD121J	2125 120 OHM 5% 1/10W SMD	S	AA	AA
	R 0529	VRD-RA2HD151J	RES 150 OHM 5% 1/2W	S	AA	AA

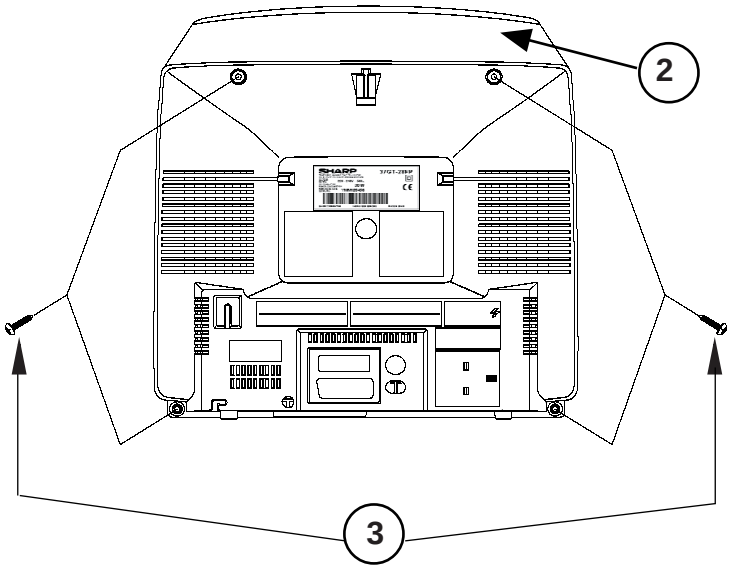
	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 0530	VRD-RA2BE274J	RES 270KOHM 5% 1/8W	S	AA	AA
	R 0533	VRS-TV1JD124J	2125 120KOHM 5% 1/10W SMD	S	AA	AA
	R 0534	VRS-TV1JD122J	2125 1,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0535	VRS-TV1JD823J	2125 82KOHM 5% 1/10W SMD	S	AA	AA
	R 0536	VRD-RA2BE472J	RES 4,7KOHM 5% 1/8W	S	AA	AA
	R 0537	VRD-RA2BE153J	RES 15KOHM 5% 1/8W	S	AA	AA
	R 0538	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0601	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0602	VRS-TV1JD471J	2125 470 OHM 5% 1/10W SMD	S	AA	AA
	R 0603	VRD-RA2HD331J	RES 330 OHM 5% 1/2W	S	AA	AA
	R 0604	VRD-RA2HD471J	RES 470 OHM 5% 1/2W	S	AA	AA
	R 0605	VRD-RA2HD6R8J	RES 6,8 OHM 5% 1/2W	S	AA	AA
	R 0606	VRD-RA2HD6R8J	RES 6,8 OHM 5% 1/2W	S	AA	AA
△	R 0607	RR-XZ0200BMZZ	FUS RES 1R0 TAP 5% 1/2W	S	AA	AB
	R 0608	VRD-RA2BE183J	RES 18KOHM 5% 1/8W	S	AA	AA
	R 0609	VRD-RA2HD2R2J	RES 2.2 OHM 5% 1/2W	S	AA	AA
	R 0610	VRD-RA2HD270J	RES 27 OHM 5% 1/2W	S	AA	AA
	R 0611	VRD-RA2HD270J	RES 27 OHM 5% 1/2W	S	AA	AA
	R 0612	VRN-VV3ABR22J	MET FILM R .22 OHM 5% 1W	S	AB	AA
	R 0613	VRD-RA2BE153J	RES 15KOHM 5% 1/8W	S	AA	AA
	R 0614	VRD-RA2BE561J	RES 560 OHM 5% 1/8W	S	AA	AA
△	R 0615	RR-XZ0200BMZZ	FUS RES 1R0 TAP 5% 1/2W	S	AA	AB
△	R 0616	RR-XZ0242BMZZ	FUS RES 3K3 TAP 5% 1/2W	S	AA	AB
	R 0617	VRD-RA2BE102J	RES 1KOHM 5% 1/8W	S	AA	AA
	R 0701	VRC-MA2HG474J	SOLID R 470KOHM 5% 1/2W KAMAY	S	AA	AB
	R 0702	VRC-MA2HG474J	SOLID R 470KOHM 5% 1/2W KAMAY	S	AA	AB
	R 0703	VRD-RA2BE100J	RES 10 OHM 5% 1/8W	S	AA	AA
	R 0704	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0705	VRS-TQ2BD271F	OX RE 270 OHM 1% 1/8W SMD	S	--	--
	R 0706	VRS-TQ2BD681F	OX RE 680 OHM 1% 1/8W SMD	S	--	--
△	R 0707	VRC-UA2HG825K	SOLID R 8,2MOHM 10% 1/2W	S	AA	AA
△	R 0708	VRC-UA2HG825K	SOLID R 8,2MOHM 10% 1/2W	S	AA	AA
	R 0710	VRD-RA2HD152J	RES 1,5KOHM 5% 1/2W	S	AA	AA
	R 0711	VRS-TV1JD220J	2125 22 OHM 5% 1/10W SMD	S	AA	AA
	R 0714	VRD-RA2HD821J	RES 820 OHM 5% 1/2W	S	AA	AA
	R 0715	VRS-TV1JD100J	2125 10 OHM 5% 1/10W SMD	S	AA	AA
	R 0716	VRD-RA2HD473J	RES 47KOHM 5% 1/2W	S	AA	AA
	R 0717	RR-XZ0200BMZZ	FUS RES 1R0 TAP 5% 1/2W	S	AA	AB
	R 0718	VRD-RA2HD561J	RES 560 OHM 5% 1/2W	S	AA	AA
	R 0719	VRS-TV1JD331J	2125 330 OHM 5% 1/10W SMD	S	AA	AA
	R 0720	VRS-TV1JD242J	2125 2,4KOHM 5% 1/10W SMD	S	AA	AA
	R 0721	VRS-TV1JD331J	2125 330 OHM 5% 1/10W SMD	S	AA	AA
	R 0722	VRS-TV1JD121J	2125 120 OHM 5% 1/10W SMD	S	AA	AA
	R 0727	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 0804	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0808	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0809	VRS-TV1JD473J	2125 47KOHM 5% 1/10W SMD	S	AA	AA
	R 0810	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0811	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0812	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 0813	VRS-TV1JD273J	2125 27KOHM 5% 1/10W SMD	S	AA	AA
	R 0814	VRS-TV1JD105J	2125 1MOHM 5% 1/10W SMD	S	AA	AA
	R 0815	VRS-TV1JD223J	2125 22KOHM 5% 1/10W SMD	S	AA	AA
	R 0816	VRD-RA2BE272J	RES 2,7KOHM 5% 1/8W	S	AA	AA
	R 0817	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0818	VRS-TV1JD153J	2125 15KOHM 5% 1/10W SMD	S	AA	AA
	R 0819	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0820	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 0821	VRS-TV1JD822J	2125 8,2KOHM 5% 1/10W SMD	S	AA	AA
	R 0822	VRS-TV1JD334J	2125 330KOHM 5% 1/10W SMD	S	AA	AA
	R 0823	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0824	VRS-TV1JD750J	2125 75 OHM 5% 1/10W SMD	S	AA	AA
	R 0825	VRS-TV1JD750J	2125 75 OHM 5% 1/10W SMD	S	AA	AA
	R 0826	VRS-TV1JD750J	2125 75 OHM 5% 1/10W SMD	S	AA	AA
	R 1001	VRD-RA2BE273J	RES 27KOHM 5% 1/8W	S	AA	AA
	R 1002	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1004	VRD-RA2BE273J	RES 27KOHM 5% 1/8W	S	AA	AA
	R 1005	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1007	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1008	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1009	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 1010	VRS-TV1JD273J	2125 27KOHM 5% 1/10W SMD	S	AA	AA

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 1011	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 1012	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 1013	VRD-RA2HD472J	RES 4.7KOHM 5% 1/2W	S	AA	AA
	R 1014	VRS-TV1JD223J	2125 22KOHM 5% 1/10W SMD	S	AA	AA
	R 1015	VRS-TV1JD223J	2125 22KOHM 5% 1/10W SMD	S	AA	AA
	R 1016	VRS-TV1JD272J	2125 2,7KOHM 5% 1/10W SMD	S	AA	AA
	R 1017	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1018	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1019	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1020	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1021	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1025	VRD-RA2BE272J	RES 2,7KOHM 5% 1/8W	S	AA	AA
	R 1026	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1028	VRD-RA2BE472J	RES 4,7KOHM 5% 1/8W	S	AA	AA
	R 1029	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1030	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1031	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1032	VRS-TV1JD101J	2125 100 OHM 5% 1/10W SMD	S	AA	AA
	R 1033	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1034	VRD-RA2BE272J	RES 2,7KOHM 5% 1/8W	S	AA	AA
	R 1035	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1036	VRD-RA2BE272J	RES 2,7KOHM 5% 1/8W	S	AA	AA
	R 1037	VRD-RA2BE272J	RES 2,7KOHM 5% 1/8W	S	AA	AA
	R 1038	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1039	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1040	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1041	VRS-TV1JD684J	2125 680KOHM 5% 1/10W SMD	S	AA	AA
	R 1042	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 1045	VRS-TV1JD272J	2125 2,7KOHM 5% 1/10W SMD	S	AA	AA
	R 1046	VRD-RA2BE332J	RES 3,3KOHM 5% 1/8W	S	AA	AA
	R 1048	VRD-RA2BE472J	RES 4,7KOHM 5% 1/8W	S	AA	AA
	R 1049	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 1050	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 1051	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 1052	VRS-TV1JD332J	2125 3.3KOHM 5% 1/10W SMD	S	AA	AA
	R 1053	VRS-TV1JD331J	2125 330 OHM 5% 1/10W SMD	S	AA	AA
	R 1054	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1055	VRS-TV1JD471J	2125 470 OHM 5% 1/10W SMD	S	AA	AA
	R 1056	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1058	VRS-TV1JD272J	2125 2,7KOHM 5% 1/10W SMD	S	AA	AA
	R 1059	VRS-TV1JD393J	2125 39KOHM 5% 1/10W SMD	S	AA	AA
	R 1060	VRS-TV1JD393J	2125 39KOHM 5% 1/10W SMD	S	AA	AA
	R 1061	VRS-TV1JD221J	2125 220 OHM 5% 1/10W SMD	S	AA	AA
	R 1062	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1063	VRD-RA2BE103J	RES 10KOHM 5% 1/8W	S	AA	AA
	R 1064	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1065	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1066	VRS-TV1JD222J	2125 2,2KOHM 5% 1/10W SMD	S	AA	AA
	R 1067	VRS-TV1JD472J	2125 4.7KOHM 5% 1/10W SMD	S	AA	AA
	R 1068	VRS-TV1JD104J	2125 100KOHM 5% 1/10W SMD	S	AA	AA
	R 1069	VRS-TV1JD473J	2125 47KOHM 5% 1/10W SMD	S	AA	AA
	R 1070	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1071	VRS-TV1JD223J	2125 22KOHM 5% 1/10W SMD	S	AA	AA
	R 1072	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1073	VRS-TV1JD223J	2125 22KOHM 5% 1/10W SMD	S	AA	AA
	R 1074	VRS-TV1JD103J	2125 10KOHM 5% 1/10W SMD	S	AA	AA
	R 1075	VRS-TQ2BD000J	3216 0 OHM 5% 1/8W SMD	S	AA	AA
	R 1076	VRS-TQ2BD101J	OX RE 100 0HM 5% 1/8W SMD	S	AA	AA
			MISCELLANEOUS PARTS			
△	F 0701	QFS-C3226CEZZ	FUSE T3.15AH 250V	S	AC	AE
	FB 0301	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0401	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0405	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	FB 0701	RBLN-0037CEZZ	BALUN FBA04HA90088-00 T/Y	S	AB	AB
	J 0004	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0006	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0008	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0009	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0010	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0017	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA

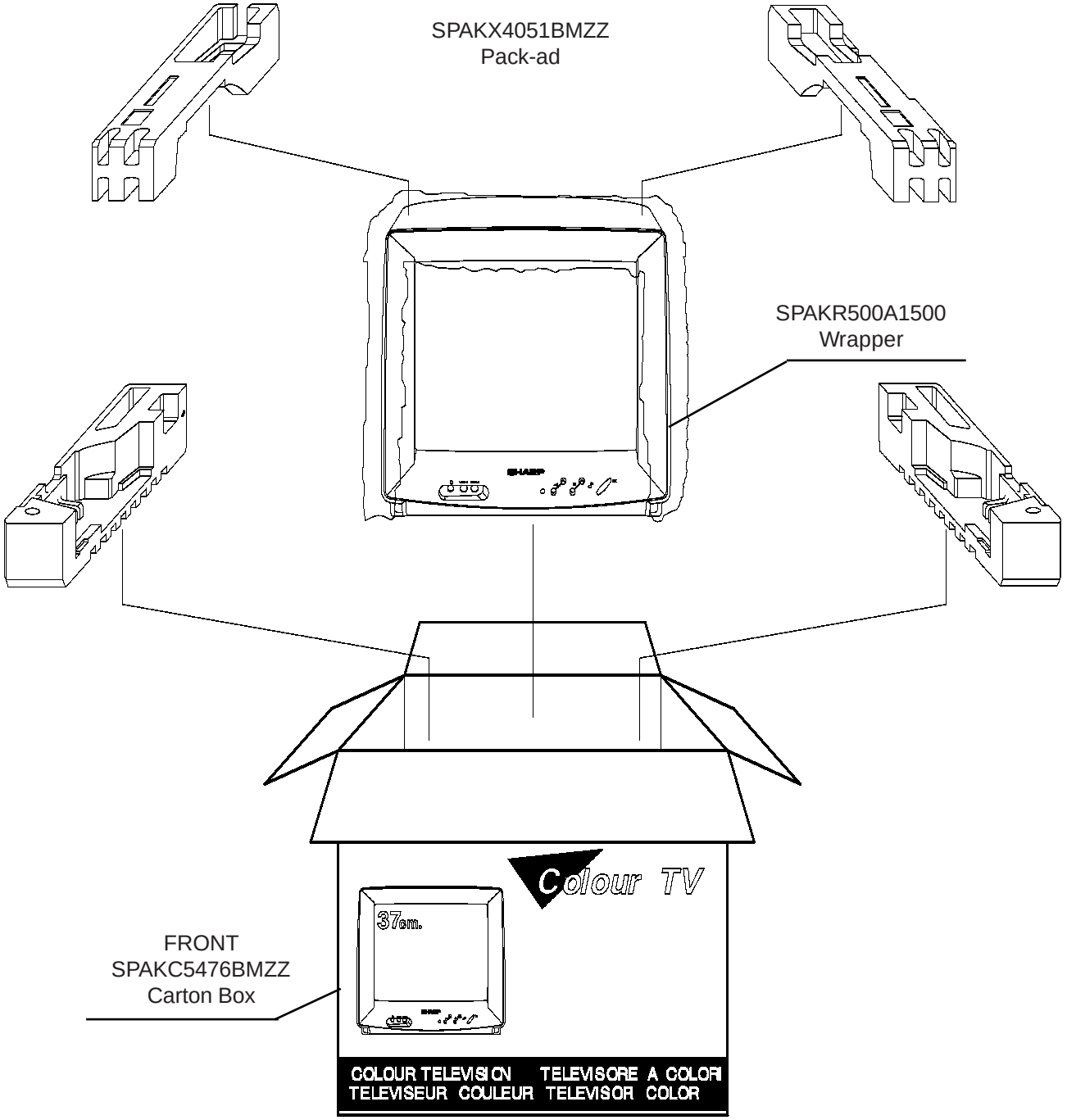
	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	J 0021	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0024	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0025	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0026	RC-FZ4104BMNJ	POL FILM C 100nF 50V 5%	S	AA	AB
	J 0056	VRS-TQ2BD000J	3216 0 OHM 5% 1/8W SMD	S	AA	AA
	J 0059	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0077	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0080	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0090	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0093	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0106	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	JF 0001	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	JF 0004	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	RMC0001	RRMCU0222CEZZ	R/C RECEIVER	S	AD	AG
△	S 0701	QSW-P0612CEZZ	POWER SWITCH ESB92D41B PANA	S	AC	AH
	S 1001	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1002	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1003	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	S 1004	QSW-K0079GEZZ	TACTILE SWITCH	S	AA	AA
	SC 0401	QSOCZ2107BMZZ	SOCKET	S	AF	AE
		QPWBF7323BMN3	PWB TELETEXTO CHASSIS SQUAD	S	--	--
	(A)	QPLGN0360CEZZ	CONNECTOR 3 PIN TV-50P-03-V2 A	S	AA	AA
	(F)	QPLGN0560CEZZ	CONNECTOR 5 PIN TV-50P-05-V2 A	S	AA	AB
	(FV)	QPLGN0341CEZZ	PLUG	S	AA	AA
	(G)	QPLGN0260CEZZ	CONNECTOR 2 PIN TV-50P-02-V2 A	S	AA	AA
	(S)	QPLGN0241CEZZ	PLUG	S	AA	AA
	PWB-B		**SOCKET UNIT**			
			TRANSISTORS			
	Q 0870	RH-TX0181BMZZ	TRT BF422 TOSHIBA	S	AA	AC
	Q 0871	RH-TX0181BMZZ	TRT BF422 TOSHIBA	S	AA	AC
	Q 0872	RH-TX0181BMZZ	TRT BF422 TOSHIBA	S	AA	AC
	Q 0883	RH-TX0180BMZZ	TRT BF421 TOSHIBA	S	AA	AB
	Q 0885	RH-TX0180BMZZ	TRT BF421 TOSHIBA	S	AA	AB
	Q 0887	RH-TX0180BMZZ	TRT BF421 TOSHIBA	S	AA	AB
			DIODES			
	D 0811	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0812	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0860	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0861	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
	D 0862	RH-DX0551BMZZ	DIODE LL4148 TFK SMD	S	AA	AA
			COILS			
	L 0861	VP-CF120K0000	PEAK COIL 12UH 10%	S	AB	AC
			CAPACITORS			
	C 0860	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0861	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0862	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0871	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0872	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0873	VCCCTV1HH471J	CERAM C 470PF 50V 2125SMD	S	AA	AA
	C 0874	VCKYPA2HB102K	CERAM C 1NF 10% 500V	S	AA	AA
	C 0876	VCKYPB3DE472Z	C DE1110-1E472Z2K MURATA	S	AA	AC
	C 0878	VCEAGA2DW106M	ELEC C 10UF 20% 200V	S	AA	AB
	C 0879	VCKZPA1HF103Z	CERAM C 10NF % 50V	S	AA	AA
			RESISTORS			
	R 0862	VRS-PU3DB153J	MET OX RES 15 KOHM 5% 2W	S	AA	AC
	R 0864	VRS-PU3DB153J	MET OX RES 15 KOHM 5% 2W	S	AA	AC
	R 0866	VRS-PU3DB153J	MET OX RES 15 KOHM 5% 2W	S	AA	AC
	R 0879	VRS-TV1JD471J	2125 470 OHM 5% 1/10W SMD	S	AA	AA
	R 0880	VRS-TV1JD471J	2125 470 OHM 5% 1/10W SMD	S	AA	AA
	R 0881	VRS-TV1JD471J	2125 470 OHM 5% 1/10W SMD	S	AA	AA
	R 0883	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0885	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0887	VRD-RA2HD272J	RES 2,7KOHM 5% 1/2W	S	AA	AA
	R 0888	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 0892	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0893	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA
	R 0894	VRS-TV1JD102J	2125 1KOHM 5% 1/10W SMD	S	AA	AA

	REF No.	PARTS	DESCRIPTION	*	SN CODE	EX CODE
	R 0898	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	R 0899	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
			MISCELLANEOUS PARTS			
	L 0003	QTIPM0017CEFM	TIP	S	AA	AA
△	SC 0881	QSOCV0842CEZZ	CRT SOCKET	S	AD	AG
	J 0097	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	J 0098	VRS-TQ2BD000J	3216 0 OHM 5% 1/8W SMD	S	AA	AA
	J 0103	VRS-TV1JD000J	2125 0 OHM 5% 1/10W SMD	S	AA	AA
	PWB-C		**FRONT A/V UNIT**			
			DIODES			
	D 1300	RH-EX0412BMZZ	ZENER DIODE BZX79C7V5	S	AA	AB
	D 1301	RH-EX0412BMZZ	ZENER DIODE BZX79C7V5	S	AA	AB
			COILS			
	L 1300	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
	L 1302	VP-DF3R3K0000	PEAK COIL 3,3UH 10%	S	AB	AB
			CAPACITORS			
	C 1300	RC-FZ9102BMNJ	POL FILM C 1NF 5% 63V	S	AA	AB
	C 1301	VCEA0A1HW105M	ELEC C 1UF 20% 50V	S	AA	AA
	C 1310	RC-FZ9473BMNJ	POL FILM C 47NF 5% 63V	S	AA	AC
	C 1311	RC-FZ9473BMNJ	POL FILM C 47NF 5% 63V	S	AA	AC
	C 1400	VCEA0A1HW225M	ELEC C 2,2UF 20% 50V	S	AA	AA
			RESISTORS			
	R 1300	VRD-RA2BE104J	RES 100KOHM 5% 1/8W	S	AA	AA
	R 1301	VRD-RA2BE101J	RES 100 OHM 5% 1/8W	S	AA	AA
	R 1316	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 1317	VRD-RA2BE471J	RES 470 OHM 5% 1/8W	S	AA	AA
	R 1400	VRD-RA2BE820J	RES 82 OHM 5% 1/8W	S	AA	AA
			MISCELLANEOUS PARTS			
	(SH)	QPLGN0241CEZZ	PLUG	S	AA	AA
	J 1301	QJAKJ0101SEZZ	MINIATURE PHONE JACK MORNING STA	S	AA	AD
	J 1401	QJAKF0014CEZZ	.	S	AA	AF
	(S)	QPLGN0241CEZZ	PLUG	S	AA	AA
	(FV)	QPLGN0341CEZZ	PLUG	S	AA	AA
			MISCELLANEOUS PARTS			
△		QACCZ2106BMSA	AC CORD 0,2mH 2,1m 24x0,2mm CA	S	AE	AP
		QANTR0081BMZZ	ROD ANTENNA	S	AD	AL
		QCNW-2859BMZZ	EHT CABLE FBT PHILIPS 14"	S	AC	AH
		RRMCG1060BMSA	R/C 37DT25S	S	AM	AU
		GCOVHA009WJSA	BATTERY COVER FOR R/C	S	**	**
		UBATU0013TAZZ	BATTERY	S	AA	AD
		VSP0080PBR1YA	SPAEAKER 32 OHM 2W 80MM SEA	S	AB	AG
		TINS-7201BMN0	OWNERS MANUAL 37GT28FP	S	AB	AF
		QFSHD1001BMZZ	FUSE HOLD.EYF52BC=PANASON	S	AA	AA
		QFSHD1002BMZZ	FUSE HOLD.EYF52BC=PANASON	S	AA	AA
	(H)	QCNW-2834BMZZ	WIRE (H) 14"	S	AA	AD
	(K)	QCNW-2835BMZZ	WIRE (K) 14"	S	AA	AD
	(L5)	QCNW-3055BMZZ	WIRE BETWEEN GNDS CA-1	S	AA	AB
	(FV)	QCNW-3066BMZZ	FRONTAL A/V WIRE SQUAD TXT	S	AA	AG
	(S)	QCNW-2676BMZZ	SPEAKER WIRE	S	AC	AE
	(SH)	QCNW-2761BMZZ	WIRE (AB) 2WAYS 32" 16:9	S	AA	AD
			CABINET PARTS			
	1	CCABA1379BMV0	CABINET SET 37GT28FP	S	AM	AY
	1.1	HBDGB1018BMSB	SILVER SHARP BADGE	S	AA	AC
	1.2	HDECQ0036BMSA	R/C DECORATION	S	AA	AB
	1.3	HDECQ0035BMSA	LED DECORATION	S	AA	AB
	1.4	JBTN-1047BMSA	UP/DOWN BUTTON	S	AA	AD
	1.5	JBTN-1046BMSA	POWER BUTTON	S	AA	AB
△	2	GCABB1107BMKA	REAR CAB. 37GQ-20S	S	AH	AU
	3	XTASB40P20000	REAR CAB. SCREWS	S	AA	AA

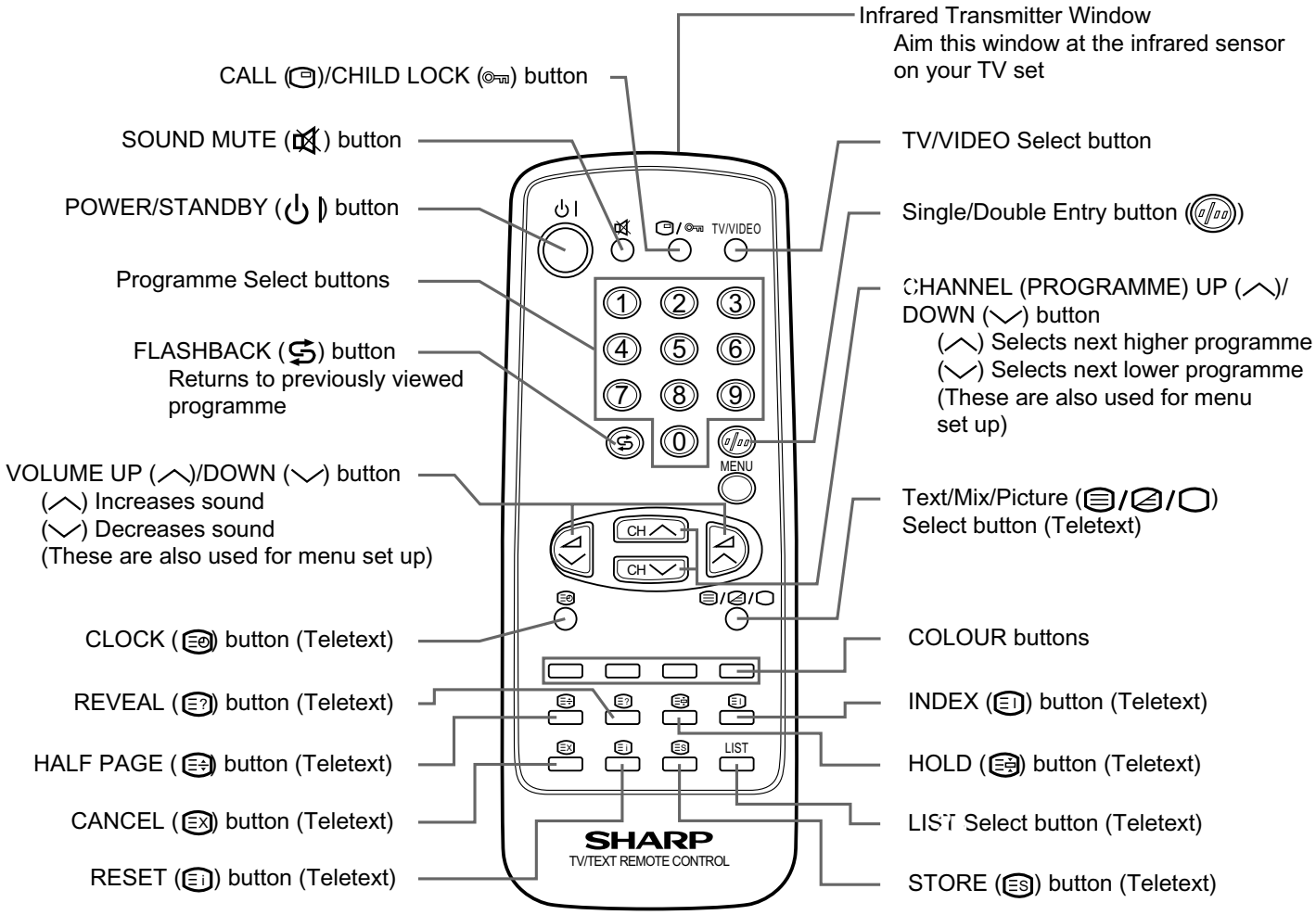




PACKING OF THE SET



REMOTE CONTROL DESCRIPTION


Infrared Transmitter Window
Aim this window at the infrared sensor on your TV set
CALL ( )/CHILD LOCK ( ) button
SOUND MUTE ( ) button
POWER/STANDBY ( ) button
Programme Select buttons
FLASHBACK ( ) button
Returns to previously viewed programme
VOLUME UP ( )/DOWN ( ) button
( ) Increases sound
( ) Decreases sound
(These are also used for menu set up)
CLOCK ( ) button (Teletext)
REVEAL ( ) button (Teletext)
HALF PAGE ( ) button (Teletext)
CANCEL ( ) button (Teletext)
RESET ( ) button (Teletext)
TV/VIDEO Select button
Single/Double Entry button ( )
CHANNEL (PROGRAMME) UP ( )/ DOWN ( ) button
( ) Selects next higher programme
( ) Selects next lower programme
(These are also used for menu set up)
Text/Mix/Picture (/ /) Select button (Teletext)
COLOUR buttons
INDEX ( ) button (Teletext)
HOLD ( ) button (Teletext)
LIST Select button (Teletext)
STORE ( ) button (Teletext)
TV/VIDEO
MENU
CH
CH
LIST
SHARP
TV/TEXT REMOTE CONTROL

DOCUMENTATION OF SOURCES.

1. STV 2238, ST Microelectronics Data Sheet:
"STV223XD/3X/4X BUS CONTROLLED MULTISTANDARD". August 1999-V4.2.

2. TDA 16833, Infineon Technologies Data Sheet:
Preliminary data sheet: "TDA16831-4 650V CoolMOS Power MOSFET integrated". Edition 1999-12-10.
http://www.infineon.com/cmc_upload/0/000/018/177/tda16831.pdf

SHARP®

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of the publisher.

SHARP ELECTRONICA ESPAÑA S.A.
TV Division
Engineering Dept.
Polígono Industrial Can Sant Joan
Sant Cugat del Vallès
Barcelona
Spain

PRINTED BY: [ ] ON: [ ]

Think Ecology, please use

RECYCLED PAPER